## Electrical nerve stimulation therapy for chronic low back pain caused by multiple fractures

Chronic low back pain that occurs as a result of multiple vertebral fractures in patients with osteoporosis is difficult to manage. Most patients require considerable analgesic intake, which is associated with adverse effects. Zambito and colleagues tested the efficacy of two modalities of electrical nerve stimulation in elderly women with osteoporosis and chronic low back pain caused by multiple fractures.

A total of 105 women (mean age 71 ± 8 years, range 50–88 years) were randomly allocated to receive horizontal therapy ($n = 35$), interferential therapy ($n = 35$) or sham horizontal therapy ($n = 35$) 5 times per week for 2 weeks. All participants were given a 45-min flexion-extension stretching exercise program to perform during the treatment period. Women were evaluated using the Backill disability questionnaire and a standard 10 cm pain visual analog scale (VAS) at baseline, 2 weeks, 6 weeks and 14 weeks.

At the end of therapy (2 weeks), all 3 groups showed significant and similar improvements in Backill and VAS scores. At 6 weeks and 14 weeks, patients in both treatment groups showed significantly greater improvements than the control group; the improvement in the horizontal therapy group was greater than that of the interferential group, but was not statistically significant. Over the duration of the study, analgesic use decreased by 57.1%, 48.6% and 31.4% in the horizontal therapy, interferential therapy and control groups, respectively.

The authors conclude that horizontal and interferential therapies effectively alleviate pain and disability in patients with chronic low back pain caused by multiple vertebral fractures.

**Original article** Zambito A *et al.* (2007) Interferential and horizontal therapies in chronic low back pain due to multiple vertebral fractures: a randomized, double blind, clinical study. *Osteoporos Int* **18:** 1541–1545

## HRT restores exercise capacity and flow-mediated vasodilation in postmenopausal women

The menopause is known to adversely affect exercise tolerance and peak oxygen consumption, possibly owing to an ovarian hormone deficiency that causes a reduced blood supply to skeletal muscles. Mercuro and colleagues evaluated the exercise capacity of newly menopausal women compared with age-matched, premenopausal women; in addition, the effects of postmenopausal hormone replacement therapy (HRT) on exercise capacity were assessed.

This case–control study included 30 sedentary, postmenopausal women (mean age 50.6 ± 1.1 years, mean time since menopause 30 ± 4 months) with no cardiovascular risk factors (e.g. high cholesterol levels, diabetes or smoking) or malignancy, and 30 premenopausal women, matched for age and biophysical characteristics. The case patients underwent a full cardiovascular examination and an integrative cardiopulmonary exercise test at baseline and after 3 months of HRT; control women underwent the same tests at baseline and 3 months.

Several parameters were significantly reduced in postmenopausal women compared with controls at baseline, including flow-mediated vasodilation in the radial artery ($P < 0.001$), maximal workload ($P < 0.01$), peak oxygen consumption ($P < 0.001$) and anaerobic threshold ($P < 0.001$). After 3 months of HRT, significant improvements were observed in flow-mediated vasodilation, maximal workload, peak oxygen consumption and anaerobic threshold in postmenopausal women; furthermore, these values were comparable to those of the premenopausal controls after 3 months.

These findings confirm that the natural menopause reduces exercise tolerance and maximum oxygen uptake. In addition, the results show that 3 months' HRT might restore exercise capacity and endothelium-dependent vasodilation in postmenopausal women.

**Original article** Mercuro G *et al.* (2007) Effect of hormone therapy on exercise capacity in early postmenopausal women. *Obstet Gynecol* **110:** 780–787

## Analysis of the phenotypic spectrum of polycystic ovary syndrome

The different phenotypes of polycystic ovary syndrome (PCOS) and the association between hormonal, metabolic and ultrasonographic criteria were analyzed in this prospective study of women presenting to outpatient departments