

# Abstracts

## Simple exercises can significantly decrease knee pain

A recent paper in the *British Medical Journal* suggests that, in overweight adults, a simple, home-based programme of quadriceps strengthening can significantly reduce knee pain and increase function.

Claire Jenkinson and colleagues looked at whether dietary intervention or knee-strengthening exercise, or both, can reduce knee pain and improve knee function in overweight and obese adults in the community. They used a pragmatic, factorial, randomised controlled trial in 5 general practices in Nottingham.

Participants were 389 men and women aged 45 and over with a body mass index (BMI) of 28.0 and self-reported knee pain.

Participants were randomised to dietary intervention plus quadriceps strengthening exercises; dietary intervention alone; quadriceps strengthening exercises alone; or advice leaflet only (control group). Dietary intervention consisted of individualised healthy eating advice that would reduce normal intake by 2.5 MJ (600 kcal) a day. Interventions were delivered at home visits over a 2-year period.

The primary outcome was severity of knee pain scored with the Western Ontario McMaster (WOMAC) osteoarthritis index at 6, 12, and 24 months. Secondary outcomes (all at 24 months) included WOMAC knee physical function and stiffness scores and selected domains on the SF-36 and the hospital anxiety and depression index.

A total of 289 (74%) participants completed the trial. There was a significant reduction in knee pain in the knee-exercise groups compared with those in the non-exercise groups at 24 months (percentage risk difference 11.61, 95% confidence interval 1.81 - 21.41%). The absolute effect size (0.25) was moderate. The number needed to treat to benefit from a 30% improvement in knee pain at 24 months was 9 (5 - 55). In those randomised to knee exercise improvement in function was evident

at 24 months (mean difference -3.64, -6.01 to -1.27). The mean difference in weight loss at 24 months in the dietary intervention group compared with no dietary intervention was 2.95 kg (1.44 - 4.46); for exercise versus no exercise the difference was 0.43 kg (-0.82 - 1.68). This difference in weight loss was not associated with improvement in knee pain or function but was associated with a reduction in depression (absolute effect size 0.19).

A home-based, self-managed programme of simple knee-strengthening exercises over a 2-year period can significantly reduce knee pain and improve knee function in overweight and obese people with knee pain. A moderate, sustained weight loss is achievable with dietary intervention and is associated with reduced depression, but is without apparent influence on pain or function.

Jenkinson C, et al. *BMJ* 2009; 339: b3170.

## Duration of use and type of oestrogen affect thromboembolism risk in oral contraceptive users

A Danish study, published in the *British Medical Journal*, suggests that the risk of thromboembolism in users of the oral contraceptive pill decreases with increasing duration of use and with decreasing oestrogen doses. Pills containing levonorgestrel had the lowest risk of thromboembolism.

Investigators assessed the risk of venous thrombosis in current users of different types of hormonal contraception, focusing on regimen, oestrogen dose, type of progestogen, and route of administration, using a national cohort study in Denmark between 1995 and 2005. Participants were Danish women aged 15 - 49 with no history of cardiovascular or malignant disease.

The main outcome measures were adjusted rate ratios for all first-time deep-vein thrombosis, portal thrombosis, thrombosis of caval vein, thrombosis of renal vein,

unspecified deep-vein thrombosis, and pulmonary embolism during the study period.

A total of 10.4 million woman-years were recorded - 3.3 million woman-years in receipt of oral contraceptives. In total, 4 213 venous thrombotic events were observed - 2 045 in current users of oral contraceptives. The overall absolute risk of venous thrombosis per 10 000 woman-years in non-users of oral contraceptives was 3.01 and in current users it was 6.29. Compared with non-users of combined oral contraceptives the rate ratio of venous thromboembolism in current users decreased with duration of use (<1 year - 4.17, 95% confidence interval 3.73 - 4.66, 1 - 4 years - 2.98, 2.73 - 3.26, and >4 years - 2.76, 2.53 - 3.02;  $p < 0.001$ ) and with decreasing dose of oestrogen. Compared with oral contraceptives containing levonorgestrel and with the same dose of oestrogen and length of use, the rate ratio for oral contraceptives with norethisterone was 0.98 (0.71 - 1.37), with norgestimate 1.19 (0.96 - 1.47), with desogestrel 1.82 (1.49 - 2.22), with gestodene 1.86 (1.59 - 2.18), with drospirenone 1.64 (1.27 - 2.10), and with cyproterone 1.88 (1.47 - 2.42). Compared with non-users of oral contraceptives, the rate ratio for venous thromboembolism in users of progestogen-only oral contraceptives with levonorgestrel or norethisterone was 0.59 (0.33 - 1.03) or with 75 µg desogestrel 1.12 (0.36 - 3.49), and for hormone-releasing intrauterine devices 0.90 (0.64 - 1.26).

The risk of venous thrombosis in current users of combined oral contraceptives decreases with duration of use and decreasing oestrogen dose. For the same dose of oestrogen and the same length of use, oral contraceptives with desogestrel, gestodene, or drospirenone were associated with a significantly higher risk of venous thrombosis than oral contraceptives with levonorgestrel. Progestogen-only pills and hormone-releasing intrauterine devices were not associated with any increased risk of venous thrombosis.

Lidegaard Ø, et al. *BMJ* 2009; 339: b2890.

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