symptomatic progression. In secondary comparisons, both baseline knee extensor (OR 1.7; 95% CI 1.1–3.3; p = 0.035) and flexor weakness (OR 2.0; 95%CI 1.1–3.3; p = 0.016) predicted isolated symptomatic progression in men, but not in women (knee extensor: OR 1.4; 95% CI 0.9–2.0; knee flexor: OR 1.3; 95% CI 0.9–2.0). Further, preservation of knee flexor strength in men over 24M was associated with isolated radiographic progression (OR 0.6; 95% CI 0.4–0.9; p = 0.013), due to the relatively large loss of strength in those with neither symptomatic nor radiographic progression over the two years (Group 4).

Conclusions: In this first evaluation of thigh muscle strength as a predictor of distinct combinations of symptomatic and radiographic progression, our results indicate that, in men, the relationship between knee extensor and flexor weakness and KOA progression may differ depending on the type of progression. These results identify a window for potentially lowering risk of symptomatic KOA progression in men.

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AN EVALUATION OF A NEW EDUCATION AND CYCLING PROGRAMME THAT AIMS TO PROMOTE THE SELF-MANAGEMENT OF HIP OSTEOARTHRITIS THROUGH EDUCATION, ADVICE AND EXERCISE

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Purpose: To present completion rates, results and patient feedback from the evaluation.

Methods: 119 participants were enrolled on CHAIN, a weekly programme run over six weeks, with each session comprising 30 minutes education on hip osteoarthritis and 30 minutes static cycling. The weekly sessions were done with groups of 10–15 participants. The content of the education session reflected NICE guidelines (education and advice, aerobic and local muscle strengthening exercise, and weight loss where appropriate) and included information on the benefits of exercise for osteoarthritis, cycling technique, pain management, diet and nutrition, assistive devices and alternative exercise options. The static cycling started at entry level and progressed gradually to a standard static cycling class equivalent at week 6. Participants were also given a home-based cycling and exercise programme, and were asked to record how often they cycled in the week, and took other exercise. Participants were tested pre and post the programme and the Oxford Hip Score (OHS), Sit-to-stand scores and EQ5D -5L and EQ5D Visual Analogue Scores (VAS) were assessed for all participants.

Results: 96 of the participants completed the programme. Of the 23 participants who failed to complete the programme, 2 didn't turn up for the initial assessment, and 3 withdrew as they reported pain following their initial assessment. 16 participants withdrew during the programme in total. Reasons for withdrawal were: an increase in pain (7), chest infection (2), broken bone unrelated (2), moving house (1), and unknown (4). Two participants failed to complete the post-programme assessment, one due to chest infection and one unknown. Table 1 shows participant characteristics.

Statistically significant improvements were found for the Oxford Hip Score, Sit-to-stand score, EQ5D Utility, EQ5D VAS as shown in Table 2. Figure 1 shows the percentage of patients who had an improvement in the outcome.

Table 1. Participant characteristics

Gender n (%)	Male	44 (46%)
	Female	52 (54%)
Primary diagnosis n (%)	No diagnosis	10 (10%)
	Osteoarthritis	75 (78%)
	Rheumatoid Arthritis	1 (1%)
	Post Traumatic	1 (1%)
	Other	6 (6%)
	Not stated	3 (3%)
BMI n (%)	Under 25.0	24 (25%)
	25.0–29.9	33 (34%)
	30.0 and over	24 (25%)
	Not stated	15 (16%)
Age mean (SD)		62.23 (9.27)
Baseline OHS mean (SD)		33.07 (8.18)

Participants' ages ranged from 39 to 81, and those with comorbidities, such as type 2 diabetes and hypertension, successfully participated in the programme. When asked about their experience of the programme, participants reported that they found it easier to carry out activities of daily living, and were more motivated to continue exercising. They also reported improved flexibility, feeling stronger and fitter, better sleep, and a reduction in pain and the need for painkillers.

Conclusions: These results suggest that the programme has potential in the management of hip osteoarthritis as the programme improved strength and functional ability for over 78% of participants, and at least 60% of participants had improved quality of life scores. The programme has a low risk profile and compliance of participants was good.

Table 2. Pre and post CHAIN mean outcome scores

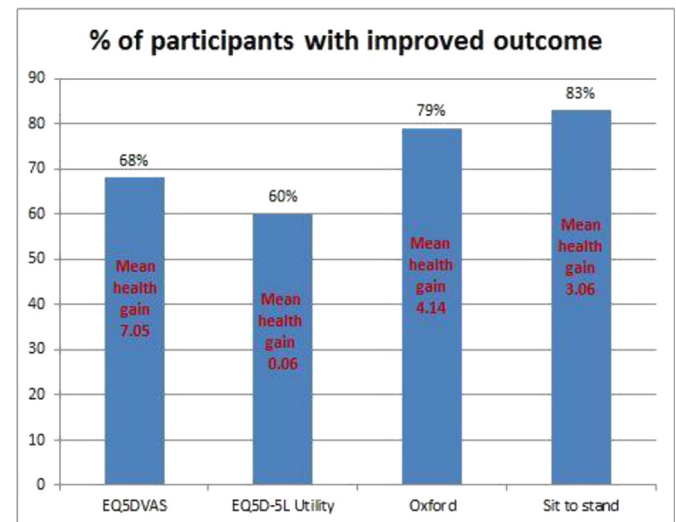| Outcome	n	Pre CHAIN mean (SD)	Post CHAIN mean (SD)	Mean of pre-post improvement (95% CI)	p (2- tailed)
OHS	96	33.07 (8.18)	37.21 (7.74)	4.14 (3.02–5.25)	<0.001
Sit-to-stand	95	14.94 (5.51)	11.86 (3.78)	3.06 (2.33–3.79)	<0.001
EQ5D Utility	96	0.70 (0.18)	0.76 (0.18)	0.06 (0.03–0.09)	<0.001
EQ5D VAS	94	74.59 (13.78)	81.71 (12.73)	7.05 (4.72–9.39)	<0.001

Figure 1. Percentage of participants with improved outcome.

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RELATIONSHIP BETWEEN CIRCULATING SEX STEROID HORMONE CONCENTRATIONS AND INCIDENCE OF TOTAL KNEE AND HIP ARTHROPLASTY DUE TO OSTEOARTHRITIS IN MEN

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Purpose: The gender-difference in the prevalence of OA after the age of 50 years suggests a role for sex hormones in the development of osteoarthritis (OA). While a number of studies have examined the association between sex hormones and risk of OA for women, only two studies to date have been conducted on men with inconsistent results. Our aim was to examine whether concentrations of circulating sex steroid hormones were associated with the incidence of primary knee and hip arthroplasty for OA.

Methods: 2,494 men from the Melbourne Collaborative Cohort Study (MCCS) had circulating sex steroid concentrations measured in blood samples drawn at recruitment (1990–1994) and stored in liquid nitrogen. The plasma concentrations of sex hormones, including dehydroepiandrosterone sulphate, androstenedione, testosterone, estradiol, androstanediol glucuronide, and sex hormone binding globulin, were measured. The incidence of total knee and hip arthroplasty