Appendix

This Appendix has been provided to supply readers with additional information about this work.

Table of contents:

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix Table 11: Number (percentage) of participants reporting global improvement, and satisfaction, with exercise advice relative to the existing service (adjusted for physiotherapist clustering and gender), using complete case data.

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix 1. Methods specific to cost-effectiveness analyses.

Cost-effectiveness was determined from a societal perspective, calculating total health care-related costs during the trial irrespective of who paid. We calculated the ratio of the between-group difference in mean total costs of exercise advice and support compared to the existing service to the difference in quality-adjusted life years (QALYs) at 6 and 12 months. We also calculated cost-effectiveness as the ratio of between-group mean cost difference to the difference in the primary outcomes of pain and function. The impact of greater access to physiotherapists on cost was included but we did not include the potential savings in travel and/or time costs associated with intervention. The initial fixed cost of training the physiotherapists to deliver the intervention (labour cost for the trainers and the time costs for the physiotherapists) was included. We have only considered patient benefits in terms of quality of life. We have not analysed the effects on productivity and wages here as there is potential for double counting of benefits if patients include work capacity in quality of life scores. We will report productivity changes in a subsequent paper. The between-group mean difference in costs and QALYs was calculated, with missing data replaced by multiple imputation as described in the main paper, adjusted for baseline values. Analyses of costs and quality of life were performed using STATA15[1] via intention-to-treat.

The adjusted comparative effects of intervention on health care costs over 6 and 12 months were estimated using a generalized linear model (with appropriate distribution and link functions chosen using a modified Park test[2] and Pregibon link test[3] with baseline costs as a covariate, and errors clustered by physiotherapist. The comparative effects of intervention on QALYs at 6 and 12 months were estimated as the area under the curve of preference based on the quality of life scores (Assessment of Quality of Life 8D (AQoL-8D)) at baseline and 6 and 12 months. Adjusted QALYs were estimated in an ordinary least squares regression analysis with baseline AQoL-8D score as a covariate.

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Inference for cost-effectiveness was based on 1000 bootstrapped regressions of non-imputed cost and QALY data. This adjusts for missing data in calculating non-symmetric 95% confidence intervals for the ratio of incremental costs to incremental QALYs.

As an aid to interpretation, the cost-effectiveness ratio and the 95% confidence intervals were re-calculated as the mean net benefit for exercise advice and support over the existing service (net benefits = difference in QALYs between groups, multiplied by the assumed willingness to pay per QALY, less the difference in cost).[4] The assumed critical maximum willingness to pay for a QALY of $60,000 was based on the likelihood of previous public reimbursements of medical technologies.[5] We varied the critical value and using a Bayesian interpretation of the p-value, calculated the probability that exercise advice and support would have net social benefits as the willingness to pay for a QALY increased.

The primary outcome in the cost-effectiveness analysis was QALYs at 12 months, derived from the AQoL-8D using the trapezoid method. The AQoL-8D is a validated preference-based measure of quality of life on a 0 (death) to 1 (perfect health) scale with ratio properties such that equal absolute increments have equal value everywhere on the scale.[6] It is therefore suitable as a multi-attribute utility scale for the calculation of QALYs.

A unit cost of $62.50 per physiotherapy session, and an hourly rate of $40 was used for the training sessions based on the average hourly rate of a physiotherapist in Australia.[7] The cost of health care-related resource use (hospital inpatient, prescription and non-prescription medications, medical services including hospital outpatient appointments, diagnostic tests, and other health practitioners) was collected via custom surveys at baseline and at 6 and 12 months and valued using published prices for medical and diagnostic costs,[8] prescription pharmaceuticals,[9] non-prescription pharmaceutical[10] and hospital unit costs.[11]

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

The sample size was determined by the primary clinical outcomes, but with actual sample sizes of 87 per group the planned cost-effectiveness analysis had 80% power to detect an incremental cost per QALY of less than the nominated critical threshold of $60,000. This was based on an assumed 0.05 absolute difference in QALYs and an increase in total costs of $1000 from exercise advice and support compared to the existing service, a standard deviation of the difference in QALYs of 0.015, a standard deviation of the difference in costs in each arm of $5000, and a -0.2 correlation between (the between-group difference in) costs and quality of life.[12]

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Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix 2. Results of cost-effectiveness analyses.

The direct cost of providing exercise advice and support was AUD$514 per participant, including $134 per person for training. Throughout the trial, 12% of reported health care costs, and 5% of AQoL-8D scores, were missing from the exercise advice and support group compared to 6 % of cost data and 2% of AQoL8D scores from the existing service group.

Table A shows the estimated cost of intervention, adjusted for baseline cost and clustering by physiotherapist. The additional cost of exercise advice and support may be offset by a reduction in the costs of other health care service use. However, we were not able to find evidence that exercise advice and support saved other health service resources compared to the existing service at 6 or 12 months. Any observed reduction in costs (in the imputed data analysis) was largely from a small number of participants who had hospital admissions in the later period (Table A). If we exclude hospital costs, the results from all analyses suggest an increase in costs with exercise advice and support of $595 (95% CI $246, $943) at 6 months and $672 (95% CI -$5, $1349) at 12 months.

Table A: Mean (95% CI) difference in health care costs ($AUD) by cost category between interventions over 6 and 12 months (generalized liner model regression Gamma with log link multiple imputation of total annual costs, adjusted for baseline cost and clustering by physiotherapist).

	Exercise advice & support (n=87) vs Existing service (n=88) at 6 months	P-value	Exercise advice & support (n=87) vs Existing service (n=88) at 12 months	P-value
Intervention	514		514	
Diagnostic	-23 (-160, 114)	0.74	50 (-173, 274)	0.66
Drugs	-23 (-133, 86)	0.67	-66 (-163, 31)	0.18
Hospital	44 (-902, 990)	0.93	-1979 (-3933, -21)	0.05
Medical	13 (-59, 85)	0.71	99 (-10, 201)	0.07
Other	12 (-205, 229)	0.91	-53 (-267, 131)	0.62
Total non-hospital	595 (246, 943)	<0.01	672 (-5, 1349)	0.05
Total cost	569 (-534, 1672)	0.31	-1258 (-3923, 1407)	0.35

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

There may be some advantage in terms of reduced participant time and travel in increasing access to physiotherapists. We have not accounted for this. However, since only about one third of the existing service group visited a physiotherapist over the trial (similar to about a third of the exercise advice and support participants), and potentially for reasons other than knee pain, there was no suggestion of any substantial time gains for participants from telephone-delivered exercise advice and support.

Change in quality of life was similar in each intervention group over 6 and 12 months (Table B).

Table B: Mean (95%CI) difference in quality-adjusted life years (area under the AQoL-8D curve), with multiple imputation for missing data, and controlling for baseline quality of life and clustering by physiotherapist.

	Exercise advice & support vs Existing service at 6 months	**P-value**	**Exercise advice & support vs Existing service at 12 months**	**P-value**
QALYs	0.003 (-0.01,0.02)	0.55	0.005 (-0.03,0.04)	0.71

QALYs=quality-adjusted life years
Note: Positive difference favours the exercise advice and support group

Increased access to exercise advice and support did not result in significant cost saving elsewhere in the health system to offset its higher cost of delivery. Indeed, if we remove hospital costs, the existing service was at least $500 less expensive per participant. The analysis of the joint uncertainty around the estimates of cost-effectiveness and the net benefits of exercise advice and support using non-parametric bootstrapping (Table C) shows that we cannot be confident that exercise advice and support has net benefits, no matter how much we are willing to pay for a QALY. At $60,000 per QALY threshold, net benefits of exercise advice and support are -$714 (95% CI: $-2053, $624) at 6 months and -$247 (95% CI: -$14795, $3646) at 12 months. Using only

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

non-hospital costs increased the net benefits of exercise advice and support but remained negative and non-significant, -$605 (95% CI -$1290, $39) at 6 months, and -$738 (95% CI -$2405, $928) at 12 months. The point estimate of net benefits is less than zero for every positive value of willingness to pay for a QALY under $800,000, and the bootstrap estimate of lower 95% CI are less than zero for every positive value of willingness to pay for a QALY.

Table C: Bootstrap incremental costs in $AUD and quality-adjusted life years (QALYs) at 6 and 12 months.

	Exercise advice & support vs Existing service at 6 months (n=162)	**Exercise advice & support vs Existing service at 12 months (n=155)**
Total cost	854 (-89, 2881)	392 (-4178, 10247)
Non-hospital costs	744 (437, 1167)	885 (249, 1657)
QALYs	0.002 (-0.01, 0.01)	0.002 (-0.02, 0.03)

Bias corrected percentile confidence intervals. At $60,000 per QALY threshold, net benefits (95%CI) at 6 months = -$832(95% CI:-$1375, $73) and at 12 months = -$537 (-$16735, $3470) using total costs (does not differ substantially using non-hospital costs). Point estimate of net benefits less than zero for every positive value of willingness to pay for a QALY under $800,000, and bootstrap estimate of lower 95% CI less than zero for every positive value of willingness to pay for a QALY.

All of the point estimates of the effects (and costs) were robust to alternative statistical analyses, although the precision of the individual estimates did vary across specifications. The estimate and the precision of the incremental cost effectiveness ratios (net benefits) were robust to variation in the specification of the regression model.

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix Table 1. Strengthening exercise protocol

1. Quadriceps strengthening (Aim to include two exercises)		
Knee extension	A. Seated knee extension (with resistance band) with 5 second hold	**Indications:** suitable first line exercise **Modifications:** eliminate resistance band, reduce/increase exercise band resistance (red then green then blue then black).
	B. Inner range quadriceps over roll with 5 second hold	**Indications:** Usually only required when any flare ups with seated knee extension (1A)
Sit-to-stand	C. Sit-to-stand without using hands	**Indications:** suitable first line exercise **Modifications:** allow use of upper limbs to assist, reduce/increase chair height, hover above the seat without touching down, more weight on affected leg, split leg position (affected leg closer to seat)
Steps	D. Step-ups	**Indications:** suitable progression from sit-to-stand (1C) **Modifications:** reduce/increase step height, hold weights (eg in hands or in backpack)
	E. Forward touch-downs from a step	**Indications:** suitable progression from step-ups (1D) **Modifications:** reduce/increase step height, hold weights (eg in hands or backpack), lower foot without touching down
Partial squats	F. Partial wall squats	**Indications:** suitable progression from sit-to-stand (1C) **Modifications:** reduce/increase hold time, increase weight on study limb
2. Hip abductor strengthening (Aim to include one exercise)		

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Standing hip abduction	A. Side leg raises with resistance band in standing	**Indications:** suitable first line exercise **Modifications:** eliminate resistance band, reduce/increase exercise band resistance (red then green then blue then black), increase hold time
Side stepping	B. Crab walk with resistance band	**Indications:** good progression from standing leg side raises (2A) **Modifications:** reduce/increase exercise band resistance (red then green then blue then black)
Standing hip abduction	C. Wall push (hip abduction with flexed hip/knee) for 20 seconds, standing on study limb	**Indications:** good progression from crab walking (2B), and for variety at final session **Modifications:** hold weights (eg in hands or backpack)
3. Hamstring strengthening (Aim for one exercise)		
Standing knee flexion	Standing over bench, knee curls with or without resistance	**Modifications:** eliminate resistance band, reduce/increase exercise band resistance (red then green then blue then black)
4. Calf strengthening (Aim for one exercise)		
Standing plantar-flexion	Double-leg heel raises	**Modifications:** single heel raises, raises from the edge of a step, increase hold time
5. Optional extras. Choose an extra exercise from any of those listed above, or one from the list below, if required:		
Quadriceps/hip/trunk strength/stability	A. Controlled squats with trunk extension, holding onto a chair	**Modifications:** reduce/increase squat depth, increase hold time, increase weight on study limb, single limb only
Hip mobility/stretch	B. Deep lunges holding onto back of chair/bench	**Modifications:** increase lunge depth
Hip extensor	C. Double-leg bridging in supine	**Modifications:** increase hold time, asymmetrical leg bridge, single-leg bridge, single-leg bridge with

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

strengthening		contralateral leg raised

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix Table 2. Baseline characteristics of participants, by completion of at least one primary outcome, reported as mean (standard deviation) unless otherwise stated. P-values based on t-tests for continuous characteristics and chi-squared test statistics for categorical characteristics.

	Missing at least one primary outcome at 6 months			Missing at least one primary outcome at 12 months		
	Missing (n=10)	Complete (n=165)	P	Missing (n=17)	Complete (n=158)	P
Group, n (%)			0.53			0.08
Existing service	6 (60)	82 (50)		12 (71)	76 (48)	
Exercise advice & support	4 (40)	83 (50)		5 (29)	82 (52)	
Age (years)	62.3 (7.9)	62.5 (8.7)	0.96	62.6 (8.5)	62.4 (8.6)	0.92
Female, n (%)	3 (30)	107 (65)	0.03	7 (41)	103 (65)	0.05
Height (m)	1.7 (0.1)	1.7 (0.1)	0.23	1.7 (0.1)	1.7 (0.1)	0.31
Body mass (kgs)	98 (17)	89 (21)	0.17	100 (23)	88 (21)	0.02
Body mass index (kg/m^2)	32.5 (3.3)	31.0 (7.4)	0.54	34.0 (7.3)	30.8 (7.1)	0.08
State/territory of residence, n (%)						
Victoria			0.11			0.62
New South Wales	1 (10)	30 (18)		1 (6)	30 (19)	
Queensland	2 (20)	31 (19)		2 (12)	31 (20)	
Western Australia	2 (20)	35 (21)		5 (29)	32 (20)	
South Australia	0 (0)	22 (13)		3 (18)	19 (12)	
Tasmania	0 (0)	21 (13)		1 (6)	20 (13)	
Australian Capital Territory	1 (10)	7 (4)		1 (6)	7 (4)	
Northern Territory	2 (20)	5 (3)		1 (6)	6 (4)	
Geographical location, n (%)[f]			0.89			0.027
Major cities	5 (50)	94 (57)		10 (59)	89 (56)	
Inner regional	2 (20)	41 (25)		3 (18)	40 (25)	
Outer regional	2 (20)	21 (12)		3 (18)	20 (13)	
Remote	1 (10)	8 (5)		0 (0)	9 (6)	
Very remote	0 (0)	1 (1)		1 (5)	0 (0)	
Currently employed, n (%)	6 (60)	80 (49)	0.48	9 (53)	77 (49)	0.74
Problems in other joints, n (%)						
Hand	2 (20)	68 (41)	0.18	5 (29)	65 (41)	0.35
Neck	4 (40.0)	52 (32)	0.58	6 (35)	50 (32)	0.76
Back	7 (70)	79 (48)	0.17	11 (65)	75 (48)	0.18
Hip	4 (40)	55 (33)	0.66	5 (29)	54 (34)	0.69
Foot	3 (30)	68 (41)	0.48	6 (35)	65 (41)	0.64
Shoulder	4 (40)	55 (33)	0.66	7 (41)	52 (33)	0.49
Treatment expectations, n (%)			0.58			0.71
No effect	0 (0)	2 (1)		0 (0)	2 (1)	
Minimal improvement	0 (0)	18 (11)		1 (6)	17 (11)	
Moderate improvement	4 (40)	84 (51)		7 (41)	81 (51)	
Large improvement	6 (60)	60 (36)		9 (53)	57 (36)	
Complete recovery	0 (0)	1 (1)		0 (0)	1 (1)	
Symptom duration (years)	8.8 (9.4)	9.7 (8.0)	0.73	8.4 (8.5)	9.8 (8.0)	0.50
Consulted doctor for knee pain, n (%)[†]	10 (100)	162 (98)	0.67	16 (94)	156 (989)	0.16
Current medication use, n (%)[‡]						
Analgesia (paracetamol combinations)	6 (60)	95 (58)	0.88	9 (53)	92 (58)	0.68
Analgesia (opioids)	0 (0)	5 (3)	0.58	1 (6)	4 (3)	0.43
Non-steroidal anti-inflammatories	2 (20)	52 (32)	0.44	5 (29)	49 (31)	0.89
COX-2 inhibitors	0 (0)	12 (7)	0.38	2 (12)	10 (6)	0.40
Topical anti-inflammatories	1 (10)	40 (24)	0.30	5 (29)	36 (23)	0.54
Overall average knee pain (NRS)	5.7 (1.2)	6.0 (1.5)	0.53	5.7 (1.3)	6.0 (1.5)	0.41
Physical function (WOMAC)	27.4 (9.8)	28.6 (11.2)	0.74	27.8 (10.3)	28.6 (11.2)	0.76
Average pain on walking (NRS)	6.0 (1.8)	5.7 (2.1)	0.70	5.9 (1.9)	5.7 (2.1)	0.70
Pain on daily activities (WOMAC)	7.0 (3.1)	8.4 (3.1)	0.15	7.8 (3.0)	8.4 (3.1)	0.45

Self-efficacy for pain (ASES)	5.5 (2.1)	5.9 (1.8)	0.52	5.8 (1.8)	5.9 (1.9)	0.91
Self-efficacy for function (ASES)	7.1 (1.7)	7.5 (1.8)	0.42	7.1 (2.4)	7.6 (1.7)	0.30
Fear of movement (BFMS)	13.6 (4.4)	12.9 (3.7)	0.55	13.9 (3.8)	12.8 (3.7)	0.23
Physical activity (PASE)	196 (79)	165 (86)	0.27	217 (98)	161 (83)	0.01
Barriers to physical activity (BtPAS)	32.0 (7.9)	28.0 (15.6)	0.43	30.5 (9.9)	28.0 (15.7)	0.53
Benefits of physical activity (BoPAS)	57.4 (6.6)	56.2 (8.6)	0.68	54.4 (7.0)	56.5 (8.6)	0.32
Health-related quality of life (AQoL)	0.7 (0.1)	0.7 (0.2)	0.35	0.7 (0.2)	0.7 (0.2)	0.98

[ƒ]based on residential postcode, in accordance with Australian Statistical Geography Standard;[†]at any time; [‡]defined as at least once per week over the prior month; NRS=numerical rating scale (0-10; higher scores indicate worse pain); WOMAC= Western Ontario and McMaster Universities Osteoarthritis Index (pain subscale 0-20; physical function subscale 0-68; higher scores indicate worse pain/function); ASES= Arthritis Self-Efficacy Scale (1-10; higher scores indicate greater self-efficacy); BFMS= Brief Fear of Movement Scale (0-24; higher scores indicate lower fear of movement); PASE=Physical Activity Scale for the Elderly (0->400; higher scores indicate better physical activity); BtPAS= Barriers to Physical activity Scale (0-92; higher scores indicate greater perceived barriers); BoPAS= Benefits of Physical Activity Scale (14-70; higher scores indicate greater perceived benefits); AQoL=Assessment of Quality of Life instrument, (-0.04-1.0; higher scores indicate better quality of life); COX-2= cyclooxygenase-2.

Appendix Table 3. Call duration and topics of discussion during consultations with nurses, across intervention groups, given as n (%) unless otherwise indicated.

	Existing service (n=85)†	Exercise advice & support (n=84)†
Nurse 1, participants	60 (71)	64 (76)
Nurse 2, participants	11 (13)	10 (12)
Nurse 3, participants	4 (4)	0 (0)
Nurse 4, participants	10 (12)	10 (12)
Mean (SD) Call duration (mins)	41 (10)	42 (8)
Exercise & activity		
Tai Chi	13 (15)	21 (25)
Nordic walking	22 (26)	40 (48)
Strength training	80 (94)	77 (92)
Pilates	10 (12)	6 (7)
Warm water exercise	82 (97)	84 (100)
Cycling	4 (5)	3 (4)
Gentle exercises	1 (1)	0 (0)
Medications		
Non-steroidal anti-inflammatories	61 (72)	67 (80)
Analgesia	79 (93)	76 (91)
Complementary therapies/supplements	32 (38)	28 (33)
Knee injections	7 (8)	3 (4)
Fish Oil/Vitamin D	8 (9)	4 (5)
Creams	1 (1)	0 (0)
Heat/cold packs	0 (0)	1 (1)
Acupuncture	0 (0)	2 (2)
Other topics		
Disability services	0 (0)	0 (0)
Dealing with pain	83 (98)	82 (98)
Peer support group	2 (2)	4 (5)
Service navigation	17 (20)	13 (16)
Medical management	31 (37)	30 (36)
Aids for daily living	12 (14)	4 (5)
Social aspects	4 (5)	4 (5)
Social security services	1 (1)	1 (1)
Falls	40 (47)	38 (45)
Diet	84 (99)	83 (99)
Employment/vocational rehabilitation	6 (7)	11 (12)
Footwear/podiatry	78 (92)	76 (91)
Mood (depression/anxiety)	8 (9)	13 (16)
Suggestion to see a physiotherapist*	60 (97)	59 (100)
Suggestion to see other allied health professional*	8 (13)	7 (12)
Dietician	2 (3)	3 (5)
Pharmacist	1 (2)	0 (0)
Podiatrist	3 (5)	3 (5)
Not reported	2 (3)	1 (2)

†n=3 did not have a consultation with nurse; *Obtained in n= 62 participants (existing service) and n=59 (exercise advice & support) only

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix Table 4: Summary of exercise & physical activity advice provided by physiotherapists during the initial call with participants allocated to the exercise advice and support group, reported as n (%) unless otherwise indicated.

	Exercise advice & support (n=84) [†]
Patient understanding about osteoarthritis and its effects	
Participant had read osteoarthritis information	70 (83)
Health literacy topics discussed:	
Common predisposing factors (e.g. overweight)	66 (79)
X-rays do not necessarily relate to severity of symptoms	68 (81)
Osteoarthritis does not necessarily get worse with age	75 (89)
Awareness about impact of weight reduction on symptoms	61 (73)
Other	41 (49)
Current main 3 functional limitations for the participant	83 (99)
Patient knowledge about minimising personal impact of osteoarthritis	
Participant had read information about self-management strategies	63 (75)
Determined if participant knew which treatments have the greatest effect on symptoms	73 (87)
Discussed/summarised main areas of self-management	81 (96)
Focus of initial consultation	
Specific strengthening exercises only	31 (37)
Physical activity plan only	13 (15)
Both specific strengthening exercise and physical activity plan	40 (48)
Motivation	
Record personal motivator/s	83 (99)
Action planning strategies used	
Memory prompts	42 (50)
Back-up plans	21 (25)
Procrastination/thinking strategy	20 (24)
Supports	23 (27)
Symptom management plan	33 (39)
Tracking progress	42 (50)
Participant confidence to carry out agreed actions	
High	63 (75)
Medium	20 (24)
Low	0 (0)

[†]n=3 did not have consultation with physiotherapist.

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix Table 5: Participant- and physiotherapist-rated adherence to strengthening program and physical activity plan, reported as mean (standard deviation) unless otherwise stated.

	Exercise advice & support group (n=87)	
	6 months (n=81)	12 months (n=80)
Participant-rated adherence to strengthening program†		
Number of prescribed exercises	7.6 (2.7)	6.0 (3.4)
Number of prescribed sessions per week	7.1 (2.8)	5.6 (3.1)
Repetitions of prescribed exercises	7.9 (2.8)	6.2 (3.5)
Overall	7.2 (2.9)	5.4 (3.5)
Participant-rated adherence to physical activity plan†	7.8 (2.6)	6.1 (3.2)
Physiotherapist-rating of participant adherence to overall program‡	7.7 (1.8)	NA

† rated using 11-point numerical rating scale (0=strongly disagree and 10= strongly agree); ‡rated using 11-point numerical rating scale (0= not at all and 10= completely as instructed).
NA= not assessed at 12 months

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix Table 6: Adverse events, medication use and other health professional consultations according to group, presented as number (%) of participants who had events, took medication or saw professionals at least once.

	6 months		12 months	
	Existing service (n=79)	Exercise advice & support (n=82)	Existing service (n=74)	Exercise advice & support (n=82)
Adverse events:				
N reporting any adverse event	3 (4%)	8 (10%)	0 (0%)	2 (2%)
Ankle/foot pain	0 (0%)	0 (0%)	0 (0%)	1 (1%)
Back pain	0 (0%)	3 (4%)	0 (0%)	0 (0%)
Knee pain	3 (4%)	6 (7%)	0 (0%)	1 (1%)
Knee stiffness/swelling	0 (0%)	1 (1%)	0 (0%)	0 (0%)
Medication use:				
N using any medication	50 (63%)	44 (54%)	43 (58%)	39 (48%)
Analgesia (paracetamol combinations)	41 (52%)	34 (41%)	34 (46%)	30 (37%)
Analgesia (opioids)	1 (1%)	1 (1%)	2 (3%)	1 (1%)
Non-steroidal anti-inflammatories	22 (28%)	21 (26%)	21 (28%)	19 (23%)
COX-2 inhibitors	6 (8%)	3 (4%)	9 (12%)	6 (7%)
Topical anti-inflammatories	13 (16%)	15 (18%)	12 (16%)	6 (7%)
Other health professional consultations:				
N consulted any health professional	70 (89%)	71 (87%)	69 (93%)	73 (89%)
General practitioner	66 (84%)	67 (82%)	66 (89%)	72 (88%)
Rheumatologist	1 (1%)	2 (2%)	1 (1%)	4 (5%)
Orthopaedic surgeon	7 (9%)	10 (12%)	9 (12%)	12 (15%)
Sports physician	9 (11%)	5 (6%)	6 (8%)	8 (10%)
Physiotherapist*	34 (43%)	25 (30%)	25 (34%)	22 (27%)
Podiatrist	18 (23%)	17 (21%)	16 (22%)	18 (22%)
Acupuncturist	4 (5%)	4 (5%)	6 (8%)	4 (5%)

*excluding consultations delivered as part of exercise & advice intervention; COX-2= cyclooxygenase-2

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix Table 7: Mean (SD) health professional consultations (outside of trial interventions) per person according to group.

	6 months		12 months	
	Existing service (n=79)	Exercise advice & support (n=82)	Existing service (n=74)	Exercise advice & support (n=82)
Other health professional consultations:				
Visits to any health professional	5.6 (5.6)	5.1 (5.5)	6.9 (8.2)	6.4 (7.8)
General practitioner	2.6 (2.5)	2.7 (2.7)	3.1 (3.0)	3.6 (4.2)
Rheumatologist	0.0 (0.1)	0.1 (0.4)	0.0 (0.1)	0.1 (0.6)
Orthopaedic surgeon	0.1 (0.4)	0.1 (0.4)	0.2 (0.6)	0.3 (1.2)
Sports physician	0.3 (0.8)	0.1 (0.7)	0.2 (0.8)	0.7 (3.2)
Physiotherapist*	1.7 (2.4)	1.4 (3.3)	2.1 (4.0)	1.0 (2.0)
Podiatrist	0.7 (3.4)	0.5 (1.3)	0.5 (1.0)	0.5 (1.1)
Acupuncturist	0.2 (0.8)	0.1 (0.5)	0.8 (4.5)	0.2 (08)

*excluding consultations delivered as part of exercise advice & support intervention.

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix Table 8: Change within groups, and difference in change between groups (adjusted for baseline value of outcome, gender, and physiotherapist clustering), for continuous outcomes, using complete case data.

	Mean (SD) change within groups				Difference in change between groups			
	Baseline minus month 6		Baseline minus month 12		Baseline to month 6		Baseline to month 12	
	Existing service (n=82)*	Exercise advice & support (n=83)†	Existing service (n=76)#	Exercise advice & support (n=82)‡	Mean difference (95% CI)	P-value	Mean difference (95% CI)	P-value
Primary outcomes								
Overall average knee pain (NRS)‡	1.8 (2.3)	2.5 (2.1)	2.0 (2.4)	2.1 (2.2)	0.7 (0.0, 1.4)	0.045	0.1 (-0.6, 0.8)	0.76
Physical function (WOMAC)‡	5.7 (10.3)	11.1 (9.1)	7.9 (11.0)	11.1 (9.6)	5.1 (1.3, 8.8)	0.008	2.7 (-1.1, 6.5)	0.16
Secondary outcomes								
Pain on daily activities (WOMAC)‡	1.7 (3.0)	3.1 (2.4)	2.0 (2.9)	2.9 (2.8)	1.3 (0.4, 2.2)	0.007	0.7 (-0.3, 1.6)	0.17
Average pain on walking (NRS)‡	1.2 (2.6)	2.3 (2.4)	1.7 (2.3)	2.1 (2.3)	1.0 (0.2, 1.8)	0.019	0.2 (-0.6, 1.0)	0.65
Self-efficacy for pain (ASES) §	-0.2 (2.3)	-1.3 (2.1)	-0.5 (2.4)	-1.4 (2.1)	-1.2 (-1.8, -0.6)	<0.001	-0.9 (-1.5, -0.3)	0.002
Self-efficacy for function (ASES) §	-0.5 (1.7)	-0.8 (1.4)	-0.6 (1.5)	-0.7 (1.5)	-0.2 (-0.7, 0.2)	0.30	-0.1 (-0.5, 0.3)	0.63
Fear of movement (BFMS) §	1.0 (3.3)	1.2 (3.5)	0.9 (3.1)	0.9 (3.3)	0.3 (-0.7, 1.2)	0.61	0.0 (-1.0, 1.0)	0.97
Physical activity (PASE) §	-12 (80)	-20 (72)	-2 (80)	-22 (97)	-11 (-40, 17)	0.44	-26 (-54, 3)	0.080
Barriers to physical activity (BtPAS) ‡	0.2 (9.8)	1.3 (10.3)	1.3 (10.8)	2.5 (11.7)	0.9 (-2.4, 4.1)	0.60	1.2 (-2.1, 4.4)	0.48
Benefits of physical activity (BoPAS) §	0.0 (7.2)	0.5 (11.7)	0.9 (8.4)	0.3 (12.4)	0.1 (-2.6, 2.8)	0.95	-0.3 (-3.0, 2.4)	0.82
AQoL II§	0.0 (0.1)	-0.1 (0.1)	-0.1 (0.1)	0.0 (0.1)	0.0 (-0.1, 0.0)	0.55	0.0 (0.0, 0.0)	0.95

NRS=numerical rating scale (0-10; higher scores indicate worse pain); WOMAC= Western Ontario and McMaster Universities Osteoarthritis Index (pain subscale 0-20; physical function subscale 0-68; higher scores indicate worse pain/function); ASES= Arthritis Self-Efficacy Scale (1-10; higher scores indicate greater self-efficacy); BFMS= Brief Fear of Movement Scale (0-24; higher scores indicating less fear of movement); PASE=Physical Activity Scale for the Elderly (0->400; higher scores indicate better physical activity); BtPAS= Barriers to Physical activity Scale (0-92; higher scores indicate greater perceived barriers); BoPAS= Benefits of Physical Activity Scale (14-70; higher scores indicate greater perceived benefits); AQoL=Assessment of Quality of Life instrument, (-0.04-1.0; higher scores indicate better quality of life).

‡For change within groups, positive changes indicate improvement. For difference in change between groups, positive differences favour exercise advice & support.

§For change within groups, negative changes indicate improvement. For difference in change between groups, negative differences favour exercise advice & support.

*n=80 for Self-efficacy for pain, Self-efficacy for function, PASE, Health-related quality of life, 79 for Fear of movement, Barriers to physical activity, Benefits of physical activity; †n=82 for Self-efficacy for pain, Self-efficacy for function, PASE, Health-related quality of life, Fear of movement, Barriers to physical activity, Benefits of physical activity; #n=75 for Self-efficacy for pain, Self-efficacy for function, PASE, Health-related quality of life, Fear of movement, Barriers to physical activity, Benefits of physical activity; ‡n=83 for Overall average knee pain, Average pain on walking.

Appendix Table 9: Difference in change between groups (adjusted for baseline value of outcome, gender, and physiotherapist clustering) for primary outcomes using complete case data, under the scenario of hypothetical complete adherence.

	Difference in change between groups among those who would have complied with their allocated treatment			
	Baseline to month 6 Mean difference (95% CI)	P-value	Baseline to month 12 Mean difference (95% CI)	P-value
Dichotomising number of consultations (5 or more calls defined as "complete adherence" to treatment)				
Overall average knee pain (NRS)‡	0.8 (0.1, 1.4)	0.027	0.1 (-0.6, 0.9)	0.74
Physical function (WOMAC)‡	5.3 (2.3, 8.4)	<0.001	3.0 (-0.2, 6.3)	0.068
Number of consultations as continuous (considering the difference between groups when all members of the treatment group receive 5 calls)				
Overall average knee pain (NRS)‡	0.5 (0.1, 1.0)	0.029	0.1 (-0.4, 0.6)	0.74
Physical function (WOMAC)‡	3.8 (1.6, 6.1)	<0.001	2.2 (-0.2, 4.6)	0.068

NRS=numerical rating scale (0-10; higher scores indicate worse pain); WOMAC= Western Ontario and McMaster Universities Osteoarthritis Index (pain subscale 0-20; physical function subscale 0-68; higher scores indicate worse pain/function).
‡ For difference in change between groups, positive differences favour exercise advice & support.

Appendix Table 10: Difference in change between groups (adjusted for baseline value of outcome, gender, and physiotherapist clustering) for primary outcomes using complete case data, under the scenario of hypothetical complete adherence, adjusting for the number of physiotherapist visits recorded by both groups outside of those delivered as part of the exercise advice and support intervention protocols.

	Difference in change between groups among those who would have complied with their allocated treatment			
	Baseline to month 6 Mean difference (95% CI)	P-value	Baseline to month 12 Mean difference (95% CI)	P-value
Dichotomising number of consultations (5 or more calls defined as "complete adherence" to treatment)				
Overall average knee pain (NRS)‡	0.8 (0.1, 1.5)	0.028	0.1 (-0.7, 0.8)	0.85
Physical function (WOMAC)‡	5.6 (2.5, 8.7)	<0.001	3.7 (0.3, 7.1)	0.031
Number of consultations as continuous (considering the difference between groups when all members of the treatment group receive 5 calls)				
Overall average knee pain (NRS)‡	0.6 (0.1, 1.1)	0.030	0.1 (-0.5, 0.6)	0.85
Physical function (WOMAC)‡	4.0 (1.8, 6.3)	<0.001	2.7 (0.2, 5.2)	0.031

NRS=numerical rating scale (0-10; higher scores indicate worse pain); WOMAC= Western Ontario and McMaster Universities Osteoarthritis Index (pain subscale 0-20; physical function subscale 0-68; higher scores indicate worse pain/function).
‡For difference in change between groups, positive differences favour exercise advice & support.

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

Appendix Table 11: Number (percentage) of participants reporting global improvement, and satisfaction, with exercise advice relative to the existing service (adjusted for physiotherapist clustering and gender), using complete case data.

	Month 6						Month 12					
	Existing service (n=88)	**Exercise advice & support (n=87)**	**Odds Ratio (95% CI)***	**Risk Difference (95% CI)***	**NNT (95% CI)**	**P-value**	**Existing service (n=88)**	**Exercise advice & support (n=87)**	**Odds Ratio (95% CI)***	**Risk Difference (95% CI)***	**NNT (95% CI)**	**P-value**
Improved overall[†]	17/80 (21)	49/82 (60)	5.7 (2.9, 11.2)	39.4 (25.9, 52.8)	3 (2, 4)	<0.001	26/75 (35)	39/82 (48)	1.7 (0.9, 3.5)	13.4 (-3.1, 30.0)	8 (4, -33)	0.11
Improved pain[†]	15/80 (19)	49/82 (60)	6.8 (3.5, 13.4)	42.1 (29.2, 54.9)	3 (2, 4)	<0.001	27/75 (36)	40/82 (49)	1.8 (0.9, 3.6)	13.5 (-3.5, 30.6)	8 (4, -29)	0.12
Improved function†	17/80 (21)	48/82 (59)	5.3 (2.7, 10.3)	37.4 (24.1, 50.7)	3 (2, 5)	<0.001	22/75 (29)	41/82 (50)	2.4 (1.3, 4.3)	20.6 (7.6, 33.5)	5 (3, 14)	0.002
Increased activity [‡]	25/80 (31)	53/82 (65)	4.0 (2.4, 6.8)	33.4 (22.1, 44.6)	3 (3, 5)	<0.001	29/75 (39)	46/82 (56)	2.0 (1.2, 3.6)	17.5 (4.2, 30.9)	6 (4, 24)	0.010
Satisfied with care [§]	32/80 (40)	76/82 (93)	18.7 (7.3, 47.7)	52.5 (40.3, 64.7)	2 (2, 3)	<0.001	35/75 (47)	70/82 (85)	6.6 (2.8, 15.9)	38.6 (23.9, 53.4)	3 (2, 5)	<0.001

[†]Rated using 7-point scales with terminal descriptors of 'much worse' to 'much better', with those indicating 'moderately better' or 'much better' classified as improved.

[‡]Rated using a 7-point scale with terminal descriptors of 'much less' to 'much more', with those indicating 'moderately more' or 'much more' classified as increased.

[§]Rated using a 7-point scale with terminal descriptors of 'extremely unsatisfied' and 'extremely satisfied', with those indicating 'moderately satisfied or 'extremely satisfied classified as satisfied.

* Odds ratios >1 and risk differences > 0 favour exercise advice & support

NNT= number needed to treat

Hinman RS, *et al. Br J Sports Med* 2020; 54:790–797. doi: 10.1136/bjsports-2019-101183

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