E4E: Self-Management Education Programs for Osteoarthritis

What is self-management for osteoarthritis?

Self-management education programs are designed to encourage people with osteoarthritis actively manage their symptoms alongside usual care. They focus on building practical skills such as problem-solving, goal setting, symptom monitoring, and understanding treatment options.

Components of self-management education programs may include learning about: constructive attitudes and approaches, positive and active engagement in daily life, emotional well-being, health-directed activities (i.e., practical actions to improve health behaviours, e.g. diet, exercise, and other healthy habits), health service navigation, social integration and support, self-monitoring and insight, and skill and technique acquisition, e.g., education about osteoarthritis and the benefits and harms of medication and other therapies.

The programs are provided in addition to medical care. Programs are most often delivered in group and face-to-face formats, although individual and remote options (telephone or online) exist.

From an equity perspective, participation and benefit may vary depending on factors such as health literacy, language, culture, socioeconomic status, and access to resources. Programs may need adaptation to ensure they are appropriate and meaningful for populations experiencing inequities.

Is it effective?

Self-management programs may provide small to no improvements in pain, function, quality of life, and self-management skills. Compared with usual care, these benefits are supported by moderate-certainty evidence, while comparisons with groups receiving attention and general information show smaller, less clinically important effects (low-certainty evidence).

Despite modest effects, the programs are unlikely to cause harm and are recommended in clinical guidelines. See Figure 1. Summary of findings table for more detailed results.

Equity-focused findings

Equity considerations highlight that people with lower income, lower health literacy, limited access to care, or living in rural or underserved areas may face greater barriers to participation unless programs are specifically designed to address these challenges.

Evidence populations experiencing inequities suggests that tailored programs may improve outcomes, including pain, self-efficacy, and quality of life. Programs adapted for populations with low health literacy, lower socioeconomic status, or from racialized communities showed improvements in

knowledge, coping skills, and symptoms. Adaptations such as simplified materials, culturally relevant content, and community-based delivery appear important for effectiveness.

However, most studies do not compare outcomes across advantaged and disadvantaged groups, so it remains unclear whether these programs reduce inequities, rather than simply improving outcomes within specific populations.

How certain are we of the results?

The certainty of the evidence ranges from moderate to low, with concerns related to risk of bias of methods (e.g., lack of blinding, unclear methods) and inconsistency across studies.

Equity-relevant data are limited:

- Most participants were older, female, and white
- Socioeconomic status, social support, and health literacy were rarely reported at baseline
- No studies assessed differential effects across PROGRESS-Plus groups
- Certainty of evidence from studies in populations experiencing inequities was generally of low to moderate certainty and was only reported in one out of two equity-focused reviews.

How can you implement it well?

Effective implementation requires both strong program design and attention to equity considerations.

General principles:

- Deliver programs alongside usual care
- Offer flexible delivery formats (group, individual, in-person, or virtual)
- Provide ongoing support and follow-up

Equity-focused strategies:

- Use plain language and various formats to support varying literacy levels
- Culturally tailor programs beyond simple translation
- Engage community members or lay leaders in program design and delivery
- Provide additional support for people with psychosocial barriers (e.g., low confidence, depression, poorer coping, limited social supports) to improve participation and retention
- Include peer, family, or community support where appropriate to strengthen engagement and ongoing self-management
- Deliver programs in accessible, trusted settings (e.g., community centres)
- Address practical barriers such as cost, transportation, and time
- Design programs to improve access for older adults, rural/remote populations, people with mobility limitations, and those with caregiving or work responsibilities

- Offer flexible formats (e.g., telephone or low-technology options) to improve reach
- Tailor programs to individual needs, abilities, confidence, readiness, and life circumstances

Key message

Self-management education programs for OA provide small but consistent benefits with minimal harms and are recommended in clinical care. Their impact may be greater when programs are tailored to the needs of diverse populations. However, there is limited evidence on whether these programs reduce health inequities, highlighting an important area for future research. Future trials should investigate programs with both exercise and psychological components, program models tailored to the individual, and structural disadvantages due to socioeconomic, cultural, and educational barriers.

Fig.1 Summary of Findings tables reproduced from Kroon et al. 2014

SUMMARY OF FINDINGS

Summary of findings for the main comparison. SMP compared to Attention control for osteoarthritis

SMP compared with attention control for osteoarthritis

Patient or population: patients with osteoarthritis
Settings: primary care, or outpatient
Intervention: SMP
Comparison: attention control

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Attention control	SMP				
Self-management of OA Arthritis self-efficacy scale (ASES). Scale from 1 to 10, higher better Follow-up: 12 months	Mean self-management of osteoarthritis in the control groups was **5.8 points**	Mean self-management of osteoarthritis in the intervention groups was **0.4 points higher** (0.4 lower to 1.2 higher)		344 (one study)	⊕⊕⊝⊝ **low** [1,2]	MD 0.4 (-0.39 to 1.19) Absolute mean improvement 4% (4% worse to 12% improved) Relative improvement 7% (7% worse to 21% improved)[3]
Positive and active engagement in life —not measured	See comment	See comment	Not estimable	-	See comment	No studies measured this outcome
Pain Multiple tools[4]. Scale from: 0 to 10, 0 = no pain Follow-up: six to 12 months	Mean pain ranged across control groups from **5.67 to 6.19 points**	Mean pain in the intervention groups was **0.8 points lower** (0.3 to 0.14 lower)		575 (three studies)	⊕⊕⊝⊝ **low** [1,2]	SMD -0.26 (-0.44 to -0.09) Absolute reduction in pain 8% (3% to 14% reduction). Relative reduction in pain 13% (5% to 22% reduction). NNTB = 8 (5 to 23)[5]
Global OA scores AIMS2 (average of physical, affect, and pain subscales). Scale from 0 to 10, lower better Follow-up: nine months	Mean global osteoarthritis symptom score in the control group was **4.22 points**	Mean global osteoarthritis symptom score in the intervention group was **0.14 points lower** (0.54 lower to 0.26 higher)		251 (one study)	⊕⊕⊝⊝ **low** [2,6]	Absolute reduction 1.4% (5.4% reduction to 2.6% increase). Relative reduction 3% (11% reduction to 5% increase)
Self-reported function	Mean self-reported function in the control groups was	Mean self-reported function in the intervention groups was		574 (three studies)	⊕⊕⊝⊝ **low** [1,2]	SMD -0.19 (-0.5 to 0.11)

Multiple tools.[7] Lower score better Follow-up: 12 months	**1.29 points on 0 to 3 scale** [8]	**0.04 points lower** (0.02 lower to 0.10 higher)				Absolute improvement in function 4% (2% reduction to 11% improvement). Relative improvement 11% (6% reduction to 30% improvement)[8]
Quality of life Quality of well-being scale. Scale from 0 to 1, higher better Follow-up: 12 months	Mean quality of life in the control groups was **0.57 units**	Mean quality of life in the intervention groups was **0.01 lower** (0.03 lower to 0.01 higher)		165 (one study)	⊕⊕⊝⊝ **low** [2,9]	Absolute mean reduction 1% (95% CI 3% lower to 1% higher) Relative reduction 2% (95% CI 5% lower to 1% higher)
Withdrawals Follow-up: six to 12 months	**117 per 1,000**	**130 per 1,000** (91 to 183)	**RR 1.11** (0.78 to 1.57)	937 (five studies)	⊕⊕⊕⊝ **moderate** [2]	Absolute risk difference 1% increase (95% CI 3% decrease to 5% increase). Relative percentage change 11% increase (95% CI 22% decrease to 57% increase)

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio.

GRADE Working Group grades of evidence.
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1]One large study was conducted in Veteran population that was mostly men (92.7%), limiting applicability of findings.
[2]Design flaws, including participants were not blind to group allocation in all trials, other trials had unclear randomisation method or concealment of allocation and unbalanced withdrawals across treatment groups, render the evidence susceptible to bias.
[3]Estimated relative changes based on mean (SD) ASES score in attention control group at baseline 5.8 (2.0) from Allen 2010.
[4]Pain VAS, pain on walking VAS and pain subscale of the arthritis impact measurement scale (AIMS).
[5]Estimated using mean (SD) for control group VAS pain on walking at baseline 6.28 (3.18) from Mazzuca 1997, and an assumed minimal clinically important difference of 1.5 points in 10-point pain scale.
[6]Approximately half of total study population in trial had rheumatoid arthritis (data not included); data are presented for the OA subgroup; small sample size and wide CIs reduce precision.
[7]AIMS physical disability subscale, AIMS2 function subscale and HAQ disability subscale.
[8]Assumed risk from Mazzuca 1997 control group at 12 months mean HAQ disability scale:1.29 (SD 0.70); 0 to 3 scale, lower score better. Absolute risk difference estimated from control group SD at baseline from the same study (SD 0.66); and relative percent change using mean control group HAQ score at baseline (1.13).
[9]Potential imprecision due to data available only from a single study (n = 165).

Summary of findings 2. SMP compared with usual care for osteoarthritis

SMP compared with usual care

Patient or population: patients with osteoarthritis
Settings: community, outpatient, primary care
Intervention: SMP
Comparison: usual care or no treatment or wait list control

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Usual care/No treatment/Wait list	SMP				
Self-management of OA Multiple tools[1]. Scale from 1 to 10, higher better Follow-up: three to 21 months	Mean self-management of osteoarthritis in the control groups, using ASES 1 to 10-point scale (10 is better), was **3.7 points** [2]	Mean self-management of osteoarthritis in the intervention groups was **0.13 points higher** (0.02 to 0.23 higher)		1,706 (11 studies)	⊕⊕⊕⊖ **moderate** [3]	SMD 0.16 (0.03 to 0.29) Absolute mean improvement 1.3% (0.2% to 2.3% improvement). Relative improvement 3.5% (0.65% to 6.3% improvement). NNTB 13 (7 to 69)[2]
Positive and active engagement in life Multiple tools[4] Follow-up: six to 12 months	Mean positive and active engagement in life in the control groups, based on SF-36 subscale for role emotional, 0 to 100 scale (100 best), was **57 points** [5]	Mean positive and active engagement in life in the intervention groups was **0.4 points higher** (8 lower to 8.4 higher)		357 (three studies)	⊕⊕⊕⊖ **moderate** [3]	SMD 0.01 (-0.2 to 0.21) Absolute mean improvement 0.4% (8% worsening to 8.8% improvement). Relative improvement 0.5% (10% worsening to 10% improvement)
Pain Multiple tools[6] Follow-up: three to 21 months	Mean pain in the control groups, based on 0 to 10 VAS scale (0 is no pain), was **3.5 points** [7]	Mean pain in the intervention groups was **0.5 points lower** (0.23 to 0.1 lower)		2,083 (14 studies)	⊕⊕⊕⊖ **moderate** [3]	SMD -0.19 (-0.28 to -0.10) Absolute mean reduction 5.5% (8% to 3% reduction). Relative reduction 16% (23% to 8% reduction). NNTB 11 (7 to 21)
Global OA scores Multiple tools[8] Follow-up: six to 21 months	Mean global osteoarthritis scores in the control groups, based on 0 to 96 point WOMAC scale (lower is better), was **35 points** [9]	Mean global osteoarthritis score in the intervention groups was **5.0 points lower** (7.6 to 2.7 lower)[9]		1,957 (seven studies)	⊕⊕⊕⊖ **moderate** [3]	SMD -0.25 (-0.37 to -0.13) Absolute mean improvement 5% (3% to 8% improvement). Relative improvement 13% (7% to 19% improvement). NNTB 10 (7 to 19)[9]

Function—Self-reported Scale from 0 to 68. Lower score is better Follow-up: six to 21 months	Mean function self-reported in the control groups, based on 0 to 68 WOMAC subscale (lower is better), was **25 points** [10]	Mean function self-reported in the intervention groups was **2.6 points lower** (3.9 to 1.3 lower)[10]		2,254 (13 studies)	⊕⊕⊕⊖ **moderate** [3]	SMD -0.18 (-0.27 to -0.09) Absolute improvement 4% (2% to 6% improvement). Relative improvement 10% (5% to 15% improvement). NNTB 14 (9 to 27)[10]
Quality of life Multiple tools[11] Follow-up: six to 21 months	Mean quality of life in the control groups, based on -0.11 to 1.0 EQ-5D scale (higher score is better), was **0.66 points** [12]	Mean quality of life in the intervention groups was **0.006 points higher** (0.03 lower to 0.04 higher)		1,383 (eight studies)	⊕⊕⊕⊖ **moderate** [3]	SMD 0.02 (-0.09 to 0.13) Absolute improvement 0.6% (2.7% worsening to 3.9% improvement). Relative improvement 1% (4.5% worsening to 6.5% improvement)
Withdrawals Losses to follow-up Follow-up: three to 21 months	**172 per 1,000**	**171 per 1,000** (128 to 229)	**RR 0.99** (0.74 to 1.33)	3,738 (16 studies)	⊕⊕⊖⊖ **low** [3,13]	Absolute risk difference 0% (3% lower to 4% higher). Relative difference 10% lower (26% lower to 33% higher)

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio.

GRADE Working Group grades of evidence.
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Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1]Arthritis self-efficacy scale (ASES), ASES subscale for pain, arthritis helplessness index (AHI) and the health education impact questionnaire (heiQ).
[2]Self-management measured using ASES 1 to 10 scale; 10 is best score, taken from Heuts 2005: mean (SD) baseline ASES score in control group was 3.7 (0.8), and mean (SD) ASES final score in control group was 3.7 (0.9); for number needed to treat for an additional beneficial outcome (NNTB) calculation, the minimal clinically important difference not known, assumed as 0.5.
[3]Participants and study personnel were not blind to group allocations; other issues included unclear randomisation and concealment of allocation; thus trials were at risk of selection, performance and detection biases. One trial, Victor 2005, had inconsistent results compared with the other 10 trials, possibly related to a high risk of bias in that trial, but we do not believe it was significant enough to downgrade the evidence further.
[4]Quality of life short form 36 (SF-36) subscale for role emotional and heiQ subscale for positive and active engagement in life.
[5]Positive and active engagement in life calculated from Victor 2005, using SF-36, 0 to 100 scale (100 is highest score): mean (SD) baseline score in control group was x (y); and mean final score in control group was 57 points.
[6]Arthritis impact measurement scale (AIMS), visual analogue scale (VAS) and Western Ontario McMaster Universities Arthritis Index (WOMAC).
[7]Pain calculated from Heuts 2005, using VAS 0 to 10 scale (0 is no pain): Mean (SD) baseline hip pain score in control group was 3.5 (2.9); and mean final score in control group was 3.5 (2.7).

[8]Western Ontario McMasters University Arthritis Index (WOMAC), Arthritis Impact Measurement Scale (AIMS2) and self-rated global health questionnaires.
[9]Global disease scores taken from Hurley 2007, using WOMAC 0 to 96 point scale (lower score better): Mean (SD) baseline score in the control group was 38.4 (19.82); and mean final score in control group was 35 points. For number needed to treat for an additional beneficial outcome (NNTB) calculation, the minimal clinically important difference not known, assumed as 0.5.
[10]Self-reported function based on Hurley 2007, using WOMAC function 0 to 68 point scale (lower score better): Mean (SD) baseline score in the control group was 27.2 (14.6); and mean final score in the control group was 25 points. For number needed to treat for an additional beneficial outcome (NNTB) calculation, the minimal clinically important difference not known, assumed as 0.5.
[11]Quality of life short form 36 (SF-36), quality of life, quality of well-being scale and EQ-5D.
[12]Quality of life taken based on Hurley EQ-5D (0 to 1 scale; higher score better): Control group mean (SD) at baseline was 0.6 (0.3) and at follow-up was 0.66 (0.3).
[13]Inconsistency across studies regarding whether greater number of withdrawals in the self-management group or control group.

References

Kroon FPB, van der Burg LRA, Buchbinder R, Osborne RH, Johnston RV, Pitt V. Self-management education programmes for osteoarthritis. Cochrane Database of Systematic Reviews 2014, Issue 1. Art. No.: CD008963. DOI: 10.1002/14651858.CD008963.pub2.