Hip Pain (Osteoarthritis) Rapid Evidence Summaries for VA DTS

Notes:

(1) We have defined the population as hip pain in older people (symptomatic hip osteoarthritis) to directly align with the NICE OA guidelines
(2) Mostly studies and reviews have included hip and/or knee OA together without separate data for each site.
(3) Evidence is often lacking specifically for hip pain.
(4) The evidence consistently showed only small or moderate average effects for most (if not all) treatment options
(5) RCT evidence included in the NICE guidelines is unlikely to pick up adverse events, particularly in the long term. Trials also tend to exclude people who will be using treatments in the real world, including those who are older, have comorbidities, etc. Additional evidence from observational studies would better estimate harm.
(6) Presenting average improvements in pain or function with treatment would be possible, but as discussed with the oversight group, may be misleading as future likely changes strongly depend on an individual patient's current level of pain and disability. The same holds for data regarding response rates.
(7) Consistency and way of describing harms and benefits in the green column to be agreed with the oversight group (text included in the decision aids)

Sources	NICE recommendations	Overall response rate	Pain intensity	Function	Adverse events	**Interpretation of results (for decision aid)**
PART 1: Early presentation of Hip OA						
Tests & scans (see also knee OA)						
NICE Guidelines Sakellariou 2017 EULAR recommendations (systematic review & expert consensus)	**1. Diagnose osteoarthritis clinically without investigations if a person:** **a. is 45 or over and** **b. has activity-related joint pain and** **c. has either no morning joint-related stiffness or morning stiffness that lasts no longer than 30 minutes. [new 2014]** **2. Be aware that atypical features, such as a history of trauma, prolonged morning joint-related stiffness, rapid worsening of**	**From Sakellariou 2017** Imaging is not required to make the diagnosis in patients with typical presentation of OA. usage-related pain, short duration morning stiffness, age>40, symptoms affecting one or a few joints. [Level of evidence: III-IV; Level of agreement (evidence and experts, range 0 strong disagreement to 10 strong agreement): 8.7 (7.9, 9.4)]	*There may be studies on patient outcomes or healthcare use (similar as for back pain), but our rapid searches have not yet identified these.* **And from Sakellariou 2017** "There is a lack of studies in which imaging was applied in addition to clinical findings to evaluate its additional impact on the certainty of diagnosis".			– – – **0** + + + Usually a health professional can diagnose someone from their symptoms and by examining them. That means that most people do not need tests or scans. If a person's hip problems do not get better, they may need an X-ray. Most of the time, people do not need more scans before a

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	symptoms or the presence of a hot swollen joint, may indicate alternative or additional diagnoses. Important differential diagnoses include gout, other inflammatory arthritides (for example, rheumatoid arthritis), septic arthritis and malignancy (bone pain). [new 2014]	In atypical presentations imaging is recommended to help confirm the diagnosis of OA and/or make alternative or additional diagnoses. [Level of evidence: IV; Level of agreement (evidence and experts): 9.6 (9.1, 10)]				provider makes a referral.
Education / information, self-management advice (see also knee OA)						
NICE guidelines NICE Surveillance 2017 (updated evidence for NICE guideline) Elbers 2018 (systematic review) Kroon 2014 (Cochrane review)	**7. Offer accurate verbal and written information to all people with osteoarthritis to enhance understanding of the condition and its management, and to counter misconceptions, such as that it inevitably progresses and cannot be treated. Ensure that information sharing is an ongoing, integral part of the management plan rather than a single event at time of presentation. [2008]** **9. Agree individualised self-management strategies with the person with osteoarthritis. Ensure**	**From NICE surveillance 2017** "Specific interventions incorporating patient education show inconsistent results. Nevertheless, the current recommendation to offer accurate verbal and written information to patients remains integral to patient-centred care"	**From NICE 2014** A meta-analysis of 9 RCTs of unspecified OA reported effect size of 0.16 (95% CI -0.69 to 1.02) for pain (weighted average standardised gain difference) in favour of education versus usual care. Self-management sig. better for reducing pain in unspecified OA site at 4 to 6 months vs controls - effect size -0.06, 95% CI -0.10 to -0.02, p<0.05, equivalent to improvement of	**From NICE 2014** A meta-analysis of 9 RCTs of unspecified OA reported no sig difference in function (weighted average standardised gain difference) for patient education vs usual care. Self-management sig. better for improving function in unspecified OA site at 4 to 6 months vs controls - effect size -0.06, 95% CI -0.10 to -0.02, p<0.05, equivalent to approximately 2 points on the WOMAC Index. [1MA, 14 RCTs] **From Elbers 2018**	**From Kroon 2014** Withdrawals at 6 to 12 months was higher for self-management groups than control groups (130 per 1,000 (95% CI 91 to 183) vs 117 per 1,000; absolute risk difference 1% (95% CI -3% to 5%)). Relative percentage change 11% (95% CI -22% to 57%)	– – – **0** + + + Information about hip pain is an important part of patient care. People with hip OA can expect benefit (although small) from supported self-management

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	that positive behavioural changes, such as exercise, weight loss, use of suitable footwear and pacing, are appropriately targeted. [2008] **GDG comments** **"The members of this working group have considered these limitations yet accept that with the expected changes in the population with a doubling of chronic disease and elderly patients by 2020 the healthcare system has to consider encouraging a greater degree of self management principles in line with current health policy. If longer term outcomes are to be achieved, such as reduction in the use of health resources, effective use of therapeutic options and more adequately prepared and informed patients seeking interventions such as joint replacement surgery, then self management may be an appropriate and cost effective tool."**		<2mm on VAS pain scale. [1MA, 14 RCTs] **From Elbers 2018** Post treatment self-management sig. more effective vs control for pain in people with MSK pain conditions (mixed sites/types) SMD= -0.28 (95% CI -0.56 to -0.01) [8 studies, n=506] At median 12 months, self-management no sig. difference compared to control for pain (mixed MSK conditions): SMD= -0.04 (95% CI -0.17 to 0.09) [10 studies, n=1767]	Post-treatment self-management sig. more effective vs control for function in people with MSK pain conditions (mixed sites/types) SMD= -0.28 (95% CI -0.52 to -0.03) [8 studies, n=957] At median 12 months, self-management no sig. difference compared to control on physical function for mixed MSK conditions: SMD -0.07 (95% CI -0.16 to 0.02) [12 studies, n=2068]		
Paracetamol (see knee OA)						
NICE guideline	**Healthcare professionals should consider offering paracetamol for pain relief in addition to core**		**From Ton 2020** No more OA patients attaining meaningful pain relief compared	**From Leopoldino 2019 (effects up to 12 weeks)**	**From Leopoldino 2019 (adverse effects up to 24 weeks)** Hip or knee OA	– – – **0** + + +

Sources	NICE recommendations	Overall response rate	Pain intensity	Function	Adverse events	**Interpretation of results (for decision aid)**
NICE Surveillance 2017 (updated evidence for NICE guideline) Ton 2020 (Systematic review of systematic reviews (RCTs of responder criteria)) Leopoldino 2019 (Cochrane review)	**treatments (see recommendation 1.2.5); regular dosing may be required. Paracetamol and/or topical non-steroidal anti-inflammatory drugs (NSAIDs) should be considered ahead of oral NSAIDs, cyclo-oxygenase 2 (COX-2) inhibitors or opioids. [2008]** **From NICE Surveillance 2017** **Recommendations due to be updated to take into account of up to date MHRA guidance**		with control (47% vs 43%, RR 1.17; 95% CI 0.83-1.64) [2 RCTs, n=991, 6 to 24 weeks; Low GRADE] **From Leopoldino 2019** **(effects up to 12 weeks)** Hip and/or knee OA Mean change in pain (VAS, 0 to 100) in the paracetamol group clinically unimportant improvement compared with placebo (MD –3.23 (95% CI –5.43 to –1.02); absolute change -3% (95% CI -5% to -1%); relative change 5% (95% CI 2% to 8%), control mean change -23 [7 studies, n=2355]	Hip and/or knee OA Mean physical function score in the paracetamol group clinically unimportant improvement compared with placebo (MD –2.92 (95% CI –4.89 to –0.95); absolute change -3% (95% CI -5% to -1%); relative change 5% (2% to 9%), control mean change -12 [7 studies, n=2534]	Sig. higher risk of abnormal liver function tests for paracetamol than placebo; absolute change 5% more abnormal tests with paracetamol than placebo (95% CI 1% to 10%); RR 3.79 (95% CI 1.94 to 7.39); control rate 18 per 1000 [3 studies, n=1237] Difference in withdrawals due to adverse events not statistically or clinically significant; absolute change 1% more withdrew with paracetamol than placebo (95% CI -1% to 3%); RR 1.19 (95% CI 0.91 to 1.55); control rate 65 per 1000 [7 studies, n=3023] Difference in % total experiencing adverse events not statistically or clinically significant; absolute change: 0% more with paracetamol than placebo (95% CI -3% to 3%); RR 1.01 (95% CI 0.92 to 1.11); control rate 325 per 1000 [8 studies, n=3252] No more serious adverse events for paracetamol than placebo; RR 1.36 (95% CI 0.73 to 2.53); control rate 11 per 1000 [6 studies, n=3209]	Some people with hip pain will get some help from taking paracetamol. Paracetamol is less likely to cause side effects than most other medicines, so it may be good to try it first. Many people find that paracetamol works better if they take it regularly instead of waiting for pain to get bad.

Topical NSAIDs (see knee OA)						
NICE guideline NICE Surveillance 2017 (updated evidence for NICE guideline) Ton 2020 (Systematic review of systematic reviews (RCTs of responder criteria))	**1.5.3 Consider topical NSAIDs for pain relief in addition to core treatments (see recommendation 1.2.5) for people with knee or hand osteoarthritis. Consider topical NSAIDs and/or paracetamol ahead of oral NSAIDs, COX-2 inhibitors or opioids. [2008]** **From NICE Surveillance New evidence highlighted in 1 MA & 4 RCTs supports current recommendations to consider topical NSAIDs in addition to other core treatments for osteoarthritis. However, part of recommendation in this section states: 'Consider topical NSAIDs and/or paracetamol ahead of oral NSAIDs, COX-2 inhibitors or opioids.' Any change to the recommended use of oral analgesics will impact on this recommendation**	**From NICE** Knee, hand or mixed OA sites Topical NSAIDs vs placebo for clinical response rate (% of patients reporting at least moderate to excellent or > 50% pain relief or improvement in symptoms rate ratio 1.64, 95% CI 1.26 to 2.13, p≤0.05; NNT 3.3, 95% CI 2.3 to 6.2, p≤0.05 at week 1 [1 MA, 1 RCTs, n=149] & at week 2 rate ratio 1.59, 95% CI 1.30 to 1.95, p≤0.05; NNT 2.9, 95% CI 2.1 to 4.7, p≤0.05 [1 MA, 1 RCT, n=152 No sig. difference at week 4 [1 MA, 1 RCT, n=114]	**From Ton 2020** Topical NSAIDs led to more OA patients attaining meaningful pain relief compared with control (61% vs 47%, RR = 1.27, 95% CI 1.16 to 1.38; NNT 8) [1-12 weeks; 22 RCTs, n=7265, Low GRADE] **From NICE** Knee, hand or mixed OA sites Topical NSAIDs vs placebo Week 1: Effect size 0.41, 95% CI 0.16 to 0.66, p≤0.05 [1 MA, 7 RCTs, n=1000] & Week 2: Effect size 0.40, 95% CI 0.15 to 0.65, p≤0.05 in favour of topical NSAIDs [6 RCTs, n=893]. No sig. difference between topical NSAIDs & placebo at 3 weeks [1 MA, 2 RCTs, n=442] & 4 weeks [3 RCTs, n=558]	**From NICE** Knee, hand or mixed OA sites Topical NSAIDs vs placebo Showed improvement in function from baseline - Week 1: Effect size 0.37, 95% CI 0.20 to 0.53, p≤0.05 [1 MA, 4 RCTs, n=556] & Week 2: Effect size 0.35, 95% CI 0.19 to 0.53, p≤0.05 [4 RCTs, n=540] in favour of topical NSAIDs [4 RCTs, n=540]. No sig. improvement in function between topical NSAIDs & placebo at 3 weeks [1 MA, 1 RCT, n=208] & 4 weeks [1 RCTs, n=208]	**From NICE** For mixed OA site: No sig difference between topical NSAIDs and placebo for number of patients with adverse events; Number of patients with GI adverse events; Number of patients with CNS adverse events; Local adverse events – skin reactions [1MA< n=1108] Versus oral NSAIDs [1 MA, 1 RCT GI adverse events - RR 0.72, 95% CI 0.59 to 0.87 in favour of topical diclofenac Severe GI adverse events - RR 0.35, 95% CI 0.17 to 0.72 in favour of topical diclofenac Dry skin reactions - RR 20.8, 95% CI 7.7 to 55.9 in favour of oral diclofenac Rash - RR 7.2, 95% CI 2.9 to 18.1 in favour of oral diclofenac	– – – 0 **+** + + Topical NSAIDs may benefit people with hip OA and may reduce the need for oral pain-killers. NSAID creams have fewer side effects than tablets and should be tried before tablets.
Oral NSAIDs & Cox-2 inhibitors (see knee OA)						
NICE guideline NICE Surveillance 2017 (updated evidence for NICE guideline) de Costa 2017 (Network meta-	**Guidance on pharmacological treatments to be reviewed in light of more recent evidence.** **27. Where paracetamol or topical NSAIDs are ineffective for pain relief for people with**	**From NICE Surveillance 2017 & Song 2016** Proportion of patient withdrawals due to lack of efficacy sig. lower for etoricoxib	**From Ton 2020** Oral NSAIDs led to more OA patients attaining meaningful pain relief compared with control (57% vs 39%, RR = 1.44, 95% CI 1.36-1.52; NNT 6) [43 RCTs, n=28,699, 4 to	**From de Costa 2017 (most studies 12 weeks follow-up)** 20 out of 21 drugs/doses included improved physical function when compared with placebo. 9 drugs/doses had effect sizes over clinical minimal	**From NICE Surveillance 2017 & Song 2016** Number of withdrawals due to adverse events not sig. different among etoricoxib, celecoxib, naproxen, &	– – **–** 0 **+** + + Most people with hip pain, including osteoarthritis, will have less pain if they take NSAID tablets, at least in the first 3

analysis, 76 RCTs, n=58,451) Ton 2020 (Systematic review of systematic reviews (RCTs of responder criteria)) Song 2016 (Network meta-analysis, 8 RCTs, n=5,942) Puljak 2017 (Cochrane review)	**osteoarthritis, then substitution with an oral NSAID / COX-2 inhibitor should be considered. [2008]** **28. Where paracetamol or topical NSAIDs provide insufficient pain relief for people with osteoarthritis, then the addition of an oral NSAID / COX-2 inhibitor to paracetamol should be considered. [2008]** **29. Use oral NSAIDs / COX-2 inhibitors at the lowest effective dose for the shortest possible period of time. [2008]** **30. When offering treatment with an oral NSAID / COX-2 inhibitor, the first choice should be either a standard NSAID or a COX-2 inhibitor (other than etoricoxib 60mg). In either case, co-prescribe with a proton pump inhibitor (PPI), choosing the one with the lowest acquisition cost. [2008]** **31. All oral NSAIDs / COX-2 inhibitors have analgesic effects of a similar magnitude but vary in their potential gastrointestinal, liver and cardio-renal toxicity; therefore, when choosing the agent and dose, take into account individual patient risk factors, including age. When prescribing these**	30–60 mg, celecoxib 200–400 mg, and naproxen 1000 mg than placebo. Number of patient withdrawals due to lack of efficacy tended to be lower in etoricoxib 30–60 mg group than in naproxen 1000 mg and celecoxib 200–400 mg groups, although not sig.	104 weeks; Moderate GRADE] **From NICE Surveillance 2017 & de Costa 2017** All preparations, irrespective of dose, improved point estimates of pain symptoms when compared with placebo. Statistically sig. effect sizes shown for 11 drugs/doses, but also clinically important effect size (i.e. 95% CI >= -0.37) for: Diclofenac 150 mg/day; Etoricoxib 30 mg/day; Etoricoxib 60 mg/day; Rofecoxib 25 mg/day; Rofecoxib 50 mg/day. Treatment effects appeared to increase as drug dose increased but only Naproxen showed sig. linear dose response (p=0.034) **From Puljak 2017** 3% absolute improvement (95% CI 2% to 5%) in pain scores (WOMAC, 0 to 500) for celecoxib over placebo, 12% relative improvement (95% CI 7% to 18%), SMD -0.22 (-0.32 to -0.12), NNTB 11 (7 to 18) [4 RCTs, n=1622, control mean score 136]	importance (-0.37), but only 2 interventions, diclofenac 150 mg/day & rofecoxib 25 mg/day, were significant. **From Puljak 2017** 4% absolute improvement (95% CI 2% to 6%) in function (WOMAC physical function, 0 to 1700) for celecoxib versus placebo, 12% relative improvement (95% CI 5% to 19%), SMD -0.17 (-0.27 to -0.07), NNTB 14 (9 to 34) [4 RCTs, n=1622, control mean score 540]	placebo, although tended to be lower with etoricoxib and placebo. **From NICE guideline** Total number with adverse events no sig. difference between NSAIDs and paracetamol over mean duration of 13.1 weeks [1 MA] Number of gastrointestinal adverse events higher for non-selective NSAIDs than paracetamol (RR 1.47, 95% CI 1.08 to 2.00, p<0.05, sig. heterogeneity), but no sig. difference between [other?] NSAIDs and paracetamol or COX-2 versus paracetamol [1 MA, 5 RCTs, mean duration of 13.1 weeks]. 0.2% with gastrointestinal adverse events for paracetamol vs 0.3% for ibuprofen [1 cohort, n=3124] **From Puljak 2017 (based on RCTs only)** Number of withdrawals due to adverse events for celecoxib vs placebo: 0% absolute change (95% CI -1% to 1%), 1% relative change (95% CI -15% to 15%), OR 0.99 (95% CI 0.85 to 1.15) [24 RCTs, n=10996, control rate 57 per 1000] Number experiencing any serious adverse events: 0%	months of taking them. These should be taken at the lowest dose that works for the shortest possible time. NSAIDs may not be right for people with some other health conditions. Most people should take tablets to protect the stomach together with NSAIDs. Many people find that NSAIDs work better if they take them regularly instead of waiting for pain to get bad.

	drugs, consideration should be given to appropriate assessment and/or ongoing monitoring of these risk factors. [2008] **32. If a person with osteoarthritis needs to take low-dose aspirin, healthcare professionals should consider other analgesics before substituting or adding an NSAID or COX-2 inhibitor (with a PPI) if pain relief is ineffective or insufficient. [2008]**				absolute change (95% CI 0% to 0%), 5% relative change (95% CI -34% to 36%), OR 0.95 (95% CI 0.66 to 1.36) [22 RCTs, n=10926, control rate 10 per 1000] Number with gastrointestinal events: 0% absolute change (95% CI 0% to 1%), 91% relative change (95% CI -76% to 1390%), OR 1.91 (95% CI 0.24 to 14.90) [8 RCTs, n=3263, control rate 1 per 1000] Number with cardiovascular events: 0% absolute change (95% CI 0% to 1%), 240% relative change (95% CI =27% to 1488%), OR 3.40 (95% CI 0.73 to 15.88) [4 RCTs, n=2112, control rate 1 per 1000]	
Opioids (see knee OA)						
NICE guideline Ton 2020 (Systematic review of systematic reviews (RCTs of responder criteria)) Toupin 2019 (Cochrane review) Bedson 2019			**From Ton 2020** Opioids led to more OA patients attaining meaningful pain relief compared with control (47% vs 43%, RR = 1.16, 95% CI 1.02 to 1.32; NNT 32) [15 RCTs, n=6266, 10 days to 24 weeks; Very Low GRADE] **From NICE** For knee and/or hip Tramadol / tramadol-paracetamol vs placebo at range 14-91 days MD	**From NICE** For knee and/or hip? Tramadol / tramadol-paracetamol vs placebo at range 14-91 days RR 1.4, 95% CI 1.2 to 1.6, in favour of tramadol [1MA, 4 RCTs, n=793]. **From Toupin 2019** Hip and/or knee OA Mean function (WOMAC physical function, 0 to 1700): 4% absolute improvement at 1-3 months (95% CI 2% to 6%),	**From Bedson 2019** Major trauma risk increased from 285 per 10,000 person-years without long-term opioids to 369/10,000 for a long-term opioid episode (<20 mg MED), 382/10,000 (20-50 mg MED), and 424/10,000 (≥50 mg MED). Adjusted hazard ratios were 1.09 (95% CI; 1.04, 1.14 for <20 mg MED vs. not being in an episode of long-term prescribing), 1.24 (95% CI; 1.16, 1.32:	– – – 0 + + + People should use only use weak opioids if a health professional says that NSAIDs are not right for them, if NSAIDs have not worked well enough, or if NSAIDs have caused side effects. Weak opioids include codeine,

			-8.47, 95% CI -12.1 to -4.9, p<0.00001 in favour of opioid/opioid-paracetamol [1 MA, 3 RCTs] **From Toupin 2019** Hip and/or knee OA Mean pain (VAS, 0 to 100): 4% absolute improvement for tramadol vs placebo at 1-3 months (95% CI 3% to 5%), 7% relative improvement (6% to 9%), SMD –0.25 (95% CI –0.32 to –0.18) [8 RCTs, n=3972, control mean 54.3]	6% relative improvement (95% CI 4% to 9%), SMD –0.20 (95% CI –0.29 to –0.12) [5 RCTs, n=2550, control mean 1059]	20-50 mg MED) and 1.34 (95% CI; 1.20, 1.50: ≥50 mg MED). Significant dose-dependent increases in the risk of overdose (any type), addiction, falls, accidental poisoning, gastrointestinal pathology, and iron deficiency anaemia were also found. [1 cohort, n=98,140 new long-term opioids users (median age 61, 41% male), median follow up 3.4 years] **From Toupin 2019** Number experiencing any adverse events: 17% absolute worsening for tramadol than placebo (95% CI 12% to 23%), 34% relative worsening (95% CI 24% to 46%), NNTH 6 (95% CI 5 to 9), RR 1.34 (95% CI 1.24 to 1.46), 659 per 1000 (95% CI 610 to 718) tramadol vs 492 per 1000 placebo [4 RCTs, n=2039] Number withdrawals due to adverse events: 12% absolute worsening for tramadol vs placebo (95% CI 9% to 16%), 164% relative worsening (95% CI 117% to 220%), NNTH 9 (95% CI 7 to 12), RR 2.64 (95% CI 2.17 to 3.20), 194 per 1000 (95% CI 159 to	taken with or without paracetamol. People should only use opioids for short periods of time. That is because opioids can cause side effects and addiction. Health professionals do not recommend that people take strong opioids for hip pain. Strong opioids include tramadol, morphine, and oxycodone.

					235) tramadol vs 73 per 1000 placebo [9 RCTs, n=4533] Number with any serious adverse events: 1% absolute worsening for tramadol vs placebo (95% CI 0% to 4%), 78% relative worsening (95% CI 11% to 184%), NNTH 68 (95% CI 29 to 477), RR 1.78 (95% CI 1.11 to 2.84), 34 per 1000 (95% CI 21 to 54) tramadol vs 19 per 1000 placebo [7 RCTs, n=3612]	
Exercise and physical activity						
NICE guideline Ton 2020 (Systematic review of systematic reviews (RCTs of responder criteria)) Goh 2019 (systematic review) Uthman 2013 (network meta-analysis) Quicke 2015 (systematic review)	**12 Advise people with osteoarthritis to exercise as a core treatment (see recommendation 1.2.5), irrespective of age, comorbidity, pain severity or disability. Exercise should include:** **▯ local muscle strengthening and** **▯ general aerobic fitness.** **It has not been specified whether exercise should be provided by the NHS or whether the healthcare professional should provide advice and encouragement to the person to obtain and carry out the intervention themselves. Exercise has been found to be beneficial but the clinician needs to make a judgement in each case on how to effectively ensure participation. This**	**From Goh 2019** "Effects appeared to peak around 2 months and then gradually decreased and became no better than usual care after 9 months. Better pain relief was reported by trials investigating participants who were younger (mean age<60 years), had knee OA, and were not awaiting joint replacement surgery."	**From Ton 2020** Exercise led to more OA patients attaining meaningful pain relief compared with control (47% vs 21%, RR = 2.36, 95% CI 1.79 to 3.12; NNT 4) [11 RCTs, n=1367, 6 to 104 weeks; Low GRADE] **From Goh 2019** For knee and/or hip OA Statistically significant exercise benefits at 8 weeks for pain vs controls (ES 0.56, 95% CI 0.44-0.68) [77 RCTs, n=6472). **From Uthman 2013** For studies including any lower limb joints. Strengthening exercise only, strengthening + flexibility, combined strengthening + flexibility	**From Goh 2019** For knee and/or hip OA Statistically significant exercise benefits for function vs controls (ES 0.50, 95% CI 0.38-0.63) [77 RCTs, n=6472). **From Uthman 2013** For any lower limb joint. Strengthening + flexibility + aerobic exercise sig. more effective than no exercise - overall difference in function −1.32 units (95% credible interval −2.44 to −0.21 units, medium effect size) (WOMAC disability scale ranging from 0 to 10) and this combination had highest probability of being best overall treatment for improving function.	**From Quicke 2015** Knee OA only. Moderate adverse events were rare, reported in 0 to 6% of physical activity participants in any included study (5 falls - 1 resulting in a fractured wrist and 1 a head laceration), 1 foot fracture (caused by a participant dropping a weight on their foot), 4 dropouts related to increased knee or other joint pain and 1 inguinal hernia attributed to physical activity. Mild adverse events reported in between 0 and 22% of physical activity participants, usually muscle soreness and temporary or mild joint pain increase.[22 RCTs]	− − − 0 **+ +** + Many people with hip pain will get some help from exercise. If someone is overweight, losing weight may help. At first, exercise may make pain worse, but this does not mean that the hip is being damaged. It's best to start with a small amount of activity and build up.

	will depend upon the person's individual needs, circumstances and self-motivation, and the availability of local facilities. [2008] **Appendix A: summary of evidence from 2017 surveillance of Osteoarthritis (2017)** **NICE guideline CG177 9 of 54**		+ aerobic, aquatic strengthening, and aquatic strengthening + flexibility sig. more effective than no exercise - Overall difference in pain intensity −2.03 cm (95% credible interval −2.82 to −1.26 cm, large effect size), Strengthening only exercise, SMD −0.81 (95% CrI −1.13 to −0.50) Flexibility + strengthening exercise, SMD −0.50 (95% CrI −0.85 to −0.16) Flexibility + strengthening + aerobic SMD −0.69 (95% CrI −1.04 to −0.35) Aquatic strengthening SMD −0.75 (95% CrI −1.42 to −0.07) Aquatic flexibility + strengthening exercise SMD −0.96 (95% CrI−1.64 to −0.27)			
Weight-loss (see knee OA)						
NICE guideline Hall 2019 (Systematic review, knee OA) – No SR for hips found	**14. Offer interventions to achieve weight loss* as a core treatment (see recommendation 1.2.5) for people who are obese or overweight. [2008]**		**From NICE** Knee OA only No sig. difference for pain between weight loss interventions and no weight loss at 8 to 18 weeks [1MA, 4 RCTs, n=417] **From Hall 2019** Knee OA only Diet-only treatments did not sig. reduce pain (SMD -0.13; 95% CI: -0.37, 0.10; I2 = 49%) but combined diet and exercise	**From NICE** Knee OA only Weight loss interventions versus no weight loss: For self-reported disability, weight loss 6.1 kg; effect size 0.23 (95% CI 0.04 to 0.42, p=0.02) favouring weight loss interventions at 8 to 18 weeks [1 MA, 4 RCTs, n=417] **From Hall 2019** Knee OA only		− − − 0 **+** + + Losing weight (if overweight or obese) can be beneficial for people with knee OA and may have similar effect for hip OA. This should be a combination of diet and exercise.

			treatments did sig. reduce pain (SMD -0.37; 95%CI: -0.69, -0.04; I2 = 54%) [5 RCTs]	Physical function improved moderately with diet treatments (SMD -0.30; 95%CI: -0.52, -0.08; I2 = 47%) and combined diet and exercise treatments (SMD -0.32; 95%CI: -0.56, -0.08; I2 = 24%) [7 RCTs]		

Sources	NICE recommendations	Overall response rate	Pain intensity	Function	Adverse events	**Interpretation of results (for decision aid)**
PART 2: Long term care / referral options for hip OA						
Steroid injections						
NICE guideline Ton 2020 (Systematic review of systematic reviews (RCTs of responder criteria)) Juni 2015 (Cochrane review)	**33. Intra-articular corticosteroid injections should be considered as an adjunct to core treatments for the relief of moderate to severe pain in people with osteoarthritis. [2008]**	**From NICE** Overall improvement (range 1 to 104 weeks): RR 1.44, 95% CI 1.13 to 1.82; p=0.003 in favour of steroid injection vs placebo [1MA, 3 RCTs, n=156]	**From Zhong 2020** **Hip OA** IA steroid not sig. different at 1-2 weeks than control (SMD –158 [95% CI –3.42 to 0.26] [2 RCTs, n=106, sig. heterogeneity] IA steroids improved pain sig. more than control at 3-4 weeks (SMD –1.93 [95% CI –3.34 to –0.52]) [4 RCTs, n=238, sig. heterogeneity] IA steroid improved pain sig more than control at 8-12 weeks (SMD –1.77 [–2.94, –0.61]) [5 RCTs, n=303, sig. heterogeneity]. Affected by baseline severity of hip OA or synovitis and injection dose or volume. **From Ton 2020** IA steroids led to more OA patients attaining meaningful pain relief compared with control (50% vs 31%, RR = 1.74, 95% CI 1.15 to 2.62; NNT 6) [7 RCTs, n=706; 4 to 24 weeks; Very Low GRADE]	**From Juni 2015** Knee OA only For median 12 weeks follow up: SMD -0.33 (95% CI -0.56 to -0.09), change in mean function score 2 (WOMAC, 0 to 10) sig. less for steroid injection vs sham injection (-0.7, 95% CI -1.2 to -0.2, control mean change -1.2), NNTB 10 (95% CI 7 to 33) [15 studies, n=1014]	**From Juni 2015** Knee OA only Number of participants experiencing any adverse event (median follow-up: 17 weeks): RR 0.89 (95% CI 0.64 to 1.23), 134 per 1000 participant-years (95% CI 96 to 185) for steroid injection vs 150 per 1000 participant-years for sham injection [2 studies, n=84] Number of participants who withdraw because of adverse events (median follow-up: 25 weeks): RR 0.33 (95% CI 0.05 to 2.07), 6 per 1000 participant-years (95% CI 1 to 35) for steroid injection vs 17 per 1000 participant-years for sham injection [2 studies, n=204] Number of participants experiencing any serious adverse event (median follow up: 26 weeks): RR 0.63 (95% CI 0.15 to 2.67), 3 per 1000 participant-years (95% CI 1 to 11) for steroid injection vs 4 per 1000 participant-years for sham injection [5 studies, n=331]	– – – 0 **+ +** + Steroid injections into the hip joint may help people with arthritis pain. People will get the most relief in the first 2 months after the injection. These are usually only done after discussion with a specialist. Getting more injections later may help less, and may cause complications.

Hyaluronic acid injections						
NICE guideline Liao 2019 (systematic review) Leite 2018 (systematic review)	**34. Do not offer intra-articular hyaluronan injections for the management of osteoarthritis. [2014]** **Not recommended by GDG as inconsistent results and small effect sizes. However, the 2017 surveillance document has recommended this is reviewed in the next update.**		**From Liao 2019** Hip OA only Hyaluronic acid did not show sig. more improvement in pain than placebo at 7-14 days (SMD –0.18 [95% CI –0.4 to 0.10]) [3 RCTs, n=192], or 28 to 30 days (SMD 0.02 [95% CI -0.15 to 0.19]) [4 RCTs, n=549], or at 'final visit' (SMD -0.14 [95% CI -0.46 to 0.18]) [5 RCTs, n=591] **From Leite 2018** Very low evidence that HA not superior to placebo for pain at 3 months (SMD -0.06; 95% CI, -0.38 to 0.25; P=0.69) [4 RCTs]	**From Liao 2019** Hip OA only Hyaluronic acid did not show sig. more improvement in pain than placebo at 7-14 days (SMD -0.14 [95% CI -0.52 to 0.24]) [2 RCTs, n=107], 28 to 30 days (SMD -0.16 [95% CI -0.34 to 0.03]) [3 RCTs, n=464] or at 'final visit' (SMD -0.28 [95% CI -0.60 to 0.05]) [5 RCTs, n=591]	**From Leite 2018** High evidence that HA not superior in adverse events to placebo (RR 1.21; 95% CI, 0.79 to 1.86; P=0.38) [4 RCTs] **From Liao 2019** Hip OA only Most common adverse effects were slight or moderate flare pain during or after injection: RCT1: 4/19 in the VS groups RCT 2: 1/21 in the placebo group and 3/101 in total RCT 3: 2/43 in the placebo group and 3/42 in the HA group RCT 4: 4/172 in the placebo group and 12/182 in the VS group. Infection reported in 1 person in only 1 RCT. 2 other rare adverse events reported in 1 RCT (e.g., pruritus or hematoma at the injection area). Withdrawals related to adverse events were reported only in 1 RCT (placebo: 10/172; VS: 10/182).	– – **– 0** + + + *Hyaluronic acid is currently not recommended by NICE.*
Arthroscopy						
Horner 2017 [systematic review; unable to access full text – summary in Pietrzak 2018]	**21. Do not refer for arthroscopic lavage and debridement as part of treatment for osteoarthritis… [2008, amended 2014]**	From Horner 2017 Some improvements following hip arthroscopy for femoral osteo-chondroplasty & labral repair [17 studies including 9,954 patients 40 years or older].		From Piuzzi 2016 Preoperative and postoperative Harris Hip Score or Modified Harris Hip Score (HHS/mHHS) reported in 5 studies (n=629) had a preop HHS/mHHS of 62.5 (range,	From Harris 2013 Major and minor complication rates during and after hip arthroscopy for any reason were 0.58% and 7.5%, respectively [92 studies, n=6,134, mostly Level IV evidence studies	– – – **0** + + + *Very low quality/grade evidence of very small improvement in clinical outcomes,*

Piuzzi 2016 [systematic review] Harris 2017 [systematic review]		However, no notable improvements were seen in patients older than 40 years with labral debridement. Increasing rates of conversion to THA were seen with increasing age: 18.1% for 40 or older, 23.1% for older than 50 years and 25.2% for over 60 with mean time to THA 25.0 months post procedure. BMI and the presence of OA were associated with poorer outcomes.		31-83) compared with 73 (range postop - average improvement was 12 points (range 8 to 21 points) on these scales. 1 additional study found initial 10 point improvement at 2 years follow-up; but no difference at final follow-up at 3 years. Concluded "Increasingly worse outcomes were seen as the severity of OA increased." [No meta-analysis, low quality studies, inconsistent results]	(88%) with short-term follow-up (mean 2.0 years)	*which reduces with age and severity of OA*
Surgery: total hip replacement (THR)						
NICE guidelines Evans 2019 (systematic review of case series + National Joint Registry data) Hofstede 2016 (systematic review) Beswick 2012 (systematic review) Garriga 2019 (interrupted time series analysis from The National Joint Registry of	**35. Clinicians with responsibility for referring a person with osteoarthritis for consideration of joint surgery should ensure that the person has been offered at least the core (non-surgical) treatment options (see recommendation 6 and Figure 3 in section 4.1.2). [2008]** **36. Base decisions on referral thresholds on discussions between patient representatives, referring clinicians and surgeons, rather than using scoring tools for prioritisation. [2008, amended 2014]**	**Evans 2019** 25-year pooled survival of hip replacements from case series was 77·6% (95% CI 76·0 to 79·2) [44 case series, n=13,212 replacements] and from joint replacement registries was 57·9% (95% CI 57·1 to 58·7) 92 series from Australia & Finland National joint registries, n=215 676 total hip replacements) **From Hofstede 2016** Predictors with sig. association with outcome following THR - Age: 11 (31%) studies	**Beswick 2012** Studies suggested that proportion of people with an unfavourable long-term pain outcome in studies ranged from 7% to 23% after hip replacement – conservative estimate assuming missing data had similar pain outcomes.		**From Garriga 2019** Out of 438 921 primary hip replacements identified from NJR and HES data, 6232 (1.6%) patients with a primary hip replacement between April 2008 and March 2016 had one or more complication in 6 months after surgery. Total of 4232 (2.6%) had hip revision in the 5 years following primary replacement surgery. **From Partridge 2018** Number (%) complications, associated 90 day mortality, odds ratios from Jan 2005 to July 2014 (N=540,623): Myocardial Infarction – 1906 (0.35%), 273 (14.3%) deaths, OR 59.2 (95% CI 51.6 to 67.9)	– – **–** 0 **+ +** + After 6 months or longer after having surgery, about 9 out of every 10 people are satisfied with their operation. About 1 out of every 10 people are not satisfied. People's mobility usually improves after surgery. But the joint may be less mobile than a healthy hip would be. A hip replacement will still be working after 25 years for about 7

England and Wales) Partridge 2018 (retrospective cohort of Hospital Episode Statistics for England & Wales)	**37. Consider referral for joint surgery for people with osteoarthritis who experience joint symptoms (pain, stiffness and reduced function) that have a substantial impact on their quality of life and are refractory to non-surgical treatment. [2008, amended 2014]** **38. Refer for consideration of joint surgery before there is prolonged and established functional limitation and severe pain. [2008, amended 2014]** **39. Patient-specific factors (including age, sex, smoking, obesity and comorbidities) should not be barriers to referral for joint surgery. [2008, amended 2014]**	Gender – female assoc with poor outcomes: 10 (29%) studies Socioeconomic status/education: 3 (9%) studies Comorbidities: 7 (20%) studies BMI: 5 (14%) studies Radiological OA: 6 (17%) studies Patient expectations: 2 (6%) studies Preop pain: 6 (17%) studies Preop function: 13 (37%) studies Health-related quality of life: 10 (29%) studies Mental well-being: 5 (14%)			Pulmonary Embolism – 2967 (0.55%), 99 (3.34%) deaths, OR 10.9 (95% CI 8.9 to 13.4) DVT – 3376 (0.62%), 29 (0.86%), OR 2.6 (95% CI 1.8 to 3.8) Cerebrovascular accident – 61 (0.01%), 18 (29.5%), OR 127.3 (95% CI 73 to 221.1) Renal failure – 3242 (0.6%), 299 (9.22%), OR 36.5 (95% CI 32.1 to 41.6) Lower respiratory tract infection – 3907 (0.72%), 389 (9.96%), OR 42.3 (95% CI 37.6 to 47.5) *Clostridium difficile* – 510 (0.09%), 68 (13.3%), OR 48.1 (95% CI 37.1 to 62.4)	out of every 10 people. It will not be working for about 3 out of every 10 people. National Joint Registry Patient Decision Support Tool (PDST) available to help make decisions about joint replacement www.njrcentre.org.uk
Joint Replacement surgery – patient satisfaction						
Hafkamp 2020 [systematic review] Okator 2019 [systematic review]		**From Hafkamp 2020** 81% of hip patients had all their expectations fulfilled at least six months post-surgery. 91% of patients were satisfied with the outcome of surgery [1 SR, 11 studies (6 only hip, 5 hip and knee)] **From Okator 2019** Factors associated with patient satisfaction: patient expectation, age, sex, pain management, patient comorbidities (medical or psychiatric that existed prior to surgery), and length of stay				

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