

**Supplementary Table 2:** Participant characteristics.

Study	Study type	groups	n	Age	% Female	BMI (kg/m <sup>2</sup> )	Diagnosis	KL grade
Ağlamiş, 2008	RCT	exercise (walking)	16	57 ± 6	100	34.2 ± 5.1	ACR	II-IV
		control (no exercise)	9	54 ± 3	100	32.1 ± 4.6		
Alkatan, 2016a	RCT	cycling	24	61 ± 5	92	31.6 ± 8.3	radiographic	I-III
		swimming	24	59 ± 10	92	34.6 ± 10.3		
Alkatan, 2016b	RCT	cycling	24	61 ± 5	92	31.6 ± 8.3	radiographic	I-III
		swimming	24	59 ± 10	92	34.6 ± 10.3		
Bautch, 1997	RCT	walking	15	66 ± 2	60	32.6 ± 1.1	ACR	NR
		control (education)	15	70 ± 2	80	24.9 ± 1.4		
Beckwée, 2015	RCT	walking	19	60 ± 9	42	27.9 ± 5.2	ACR	I-IV
		strength	19	61 ± 9	68	27.1 ± 9.9		
Benli Küçük, 2018	RCT	walking	15	53 ± 5	100	29.6 ± 3.5	ACR	II-III
		isometric	15	52 ± 7	100	29.9 ± 7.2		
Bressel, 2014	case series	aquatic walking	18	65 ± 10	11	NR	radiographic + rheumatologist	NR
Brooks, 2014	case series	exercise (cycling + walking)	52	63 ± 10	47	35.4 ± 11.5	ACR	NR
Brosseau, 2012	RCT	walking	79	64 ± 10	70	29.4 ± 5.4	ACR	NR
		control (self-directed walking)	74	62 ± 7	64	29.9 ± 5.3		
Casilda-López, 2017	RCT	aquatic dance	17	67 ± 7	100	31.7 ± 2.4	NR	NR
		aquatic exercise	17	66 ± 6	100	33.6 ± 3.0		
Cheung, 2014	RCT	exercise (cycling + walking)	28	74 ± 8	84	29.2 ± 7.1	self-reported symptomatic	NR
		control (education)	23	72 ± 8		27.8 ± 7.9		

de Rooij, 2017	RCT	exercise (walking)	63	63 ± 8	78	36.0 ± 6.9	ACR	NR
		control (usual care)	63	64 ± 12	73	35.0 ± 7.6		
Ettinger, 1997	RCT	aerobic	144	69 ± 6	69	NR (50% had >30)	radiographic + symptomatic	NR
		control (education)	149	69 ± 6	68	NR (50% had >30)		
Evcik, 2002	prospective cohort	walking	28	57 ± 7	61	NR	radiographic	I-III
		control (no exercise)	26	56 ± 7	69	NR		
Fitzgerald, 2011	RCT	exercise (walking)	92	65 ± 8	67	30.2 ± 6.1	ACR	II-IV
Fransen, 2001	RCT	exercise (cycling/walking)	83	67 ± 8	76	29.9 ± 5.3	ACR	NR
		control (no exercise)	43	66 ± 10	67	28.3 ± 4.5		
Gaudreault, 2011	case series	PT	29	63 ± 8	76	31.0 ± 5.0	ACR	I-IV
Gomes, 2012	case series	walking	15	67 ± 4	100	27.8 ± 4.1	ACR	0-IV
Gomes, 2014	case series	walking	16	67 ± 4	100	27.8 ± 4.1	ACR	0-IV
Gomes, 2016	case series	walking	16	67 ± 4	100	27.8 ± 4.1	ACR	0-IV
Hunt, 2013	RCT	exercise (cycling + walking)	10	59 ± 4	70	28.2 ± 5.1	ACR	II-IV
Kabiri, 2018	RCT	exercise (walking)	24	57 ± 7	79	25.9 ± 2.2	ACR	II-III
		exercise (cycling)	23	56 ± 11	78	26.2 ± 2.9		
Kappetijn, 2014	prospective cohort	exercise (cycling + walking)	16	62 ± 7	54	26.8 ± 2.1	radiographic + symptomatic	NR
Keefe, 2004	RCT	exercise (cycling/walking/water aerobics)	16	60 ± 9	38	NR	rheumatologist	NR
		control (usual care)	18	58 ± 14	61	NR		
Koli, 2015	RCT	aerobic	38	58 ± 4	100	27.1 ± 9.9	radiographic	I-II
		control (no exercise)	40	59 ± 4	100	26.7 ± 4.2		
Kovar, 1992	RCT	walking	52	70 ± 9	77	NR	radiographic + symptomatic	NR
		control (usual care)	50	69 ± 11	90	NR		

Kuptniratsaikul, 2018	RCT	exercise (water walking)	40	62 ± 7	93	28.4 ± 3.0	symptomatic	NR
		control (home based)	40	62 ± 4	94	28.9 ± 3.2		
Larose, 2013	RCT	walking	42	65 ± 10	74	28.4 ± 4.9	ACR	NR
		control (self-directed walking)	32	61 ± 7	66	30.3 ± 6.3		
Lau, 2014	case series	aquatic exercise (stepping)	20	72 ± 2	75	NR	clinical by doctor	NR
Lim, 2010	RCT	aquatic exercise (walking + cycling)	26	66 ± 9	88	27.9 ± 1.5	radiographic	II-IV
		land exercise (cycling)	25	68 ± 8	84	27.6 ± 1.7		
		control (home based)	24	63 ± 5	88	27.7 ± 2.0		
Lund, 2008	RCT	aquatic exercise (running)	27	65 ± 12	83	NR	ACR	NR
		land exercise (cycling)	25	68 ± 10	88			
		control	27	70 ± 10	66			
Mangione, 1999	RCT	high intensity cycling	19	71 ± 6	74	29.6 ± 5.2	radiographic/symptomatic	NR
		low intensity cycling	20	71 ± 6	60	29.1 ± 5.1		
Messier, 2000	RCT	exercise (walking)	11	69 ± 5	64	38 ± 6	radiographic + symptomatic	NR
Messier, 2004	RCT	exercise (walking)	80	69 ± 7	74	34.2 ± 5.4	radiographic + symptomatic	I-III
		control (education)	78	69 ± 1	68	34.2 ± 5.3		
Messier, 2007	RCT	exercise (walking)	44	74 ± 9	67	27.3 ± 4.7	ACR	II-III
Messier, 2013	RCT	exercise (walking)	150	66 ± 6	72	33.5 ± 3.7	radiographic + symptomatic	II-III
		diet	152	66 ± 6	71	33.7 ± 3.8		
Nicklas, 2004	RCT	exercise (walking)	67	69 ± 6	74	34.6 ± 5.8	radiographic + symptomatic	I-III
		control (education)	70	69 ± 6	65	34.5 ± 5.3		

Peeler, 2015	case series	LBPP walking	31	64 ± 6	71	32.8 ± 6.5	radiographic	I-III
Péloquin, 1999	RCT	exercise	59	66 ± 7	71	29.8 ± 4.5	ACR	I-III
		control (education)	65	66 ± 8	69	29.8 ± 4.8		
Rosa, 2011	prospective cohort	isokinetic (cycling)	33	59	97	28.0	radiographic	II-IV
		isometric	33	58	91	28.6		
Rosemffet, 2004	RCT	exercise (walking + cycling)	8			29.2 ± 1.3	ACR	II-IV
		control (functional electrostimulation)	10	61 ± 3	77	33.6 ± 2.3		
Salacinski, 2012	RCT	cycling	19	55 ± 11	79	22.4 ± 3.3	ACR	II-IV
		control (no exercise)	18	60 ± 8	67	25.7 ± 6.3		
Samut, 2015	RCT	walking	14	58 ± 6	50	33.9 ± 7.3	ACR	II-III
		control (no exercise)	13	61 ± 9	50	30.4 ± 5.7		
Singh, 2011	RCT	aerobic (walk + cycle)	100	54 ± 7	69	27.7 ± 3.5	NR	NR
		control (PT)	100	55 ± 7		27.2 ± 2.8		
Somers, 2012	RCT	exercise (cycling)	59	58 ± 11	80	33.5 ± 4.5	radiographic + symptomatic	0-IV
		control (standard care)	51	58 ± 10	89	34.1 ± 4.7		
Thorstensson, 2005	RCT	exercise (cycling + trampoline)	30	55 ± 7	50	29.6 ± 4.5	radiographic	III-IV
		control (no exercise)	31	57 ± 5	52	29.5 ± 5.1		
Wallis, 2016	RCT	walking	23	68 ± 8	39	34.0 ± 5.0	radiographic	III-IV
		control (usual care)	23	67 ± 7	48	34.0 ± 7.0		
Wang, 2011	RCT	aquatic exercise (walking)	26	67 ± 5	85	26.2 ± 2.4	radiographic + symptomatic	NR
		land exercise (walking)	26	68 ± 6	89			
		control (no exercise)	26	68 ± 6	85			
Yennan, 2010	RCT	aquatic exercise	25	66 ± 5	100	24.4 ± 2.7	ISOA score	NR

	(walking) land exercise (walking)				mild-moderate
		25	66 ± 4	100	23.7 ± 2.2
AVERAGE		3448	63 ± 7	76	29.3 ± 4.9

Studies that have mixed interventions describe the aerobic portion in brackets. Values are mean ± SD. BMI; body mass index, RCT; randomized control trial, ACR; American College of Rheumatology criteria for OA diagnosis,[101] NR; not reported, K/L; Kellgren-Lawrence, PT; physiotherapy, LBPP; lower body positive pressure.