



# **GLA:D™ Canada Implementation and Outcomes**

**2019 Supplementary Report: Analysis of  
Provincial and Territorial Data**

# GLA:D™ Canada Project Team

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# GLA:D Canada: 2019 Supplementary Report

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This supplementary report presents provincial-level patient registry data for the three highest-enrolling provinces to the end of 2019: Ontario, Alberta and British Columbia. Data for the remaining provinces and territories have been excluded because of limited patient numbers and/or lack of 12 month follow up data to the end of 2019.

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## ONTARIO

## Baseline characteristics of GLA:D participants

Measure	Category	Hip (N=629)	Knee (N=1839)
<b>Demographics</b>			
Year of enrollment	2016	0.2% (1)	0.1% (1)
	2017	15.6% (98)	11.4% (210)
	2018	27.7% (174)	29.5% (543)
	2019	56.6% (356)	59.0% (1085)
Gender	Female	72.4% (453)	75.5% (1384)
	Male	27.6% (173)	24.5% (450)
	Not reported	— (3)	— (5)
Age (y)	—	66.0 ± 9.4 (N = 628)	65.5 ± 8.8 (N = 1836)
Age group	< 55	9.7% (61)	10.7% (197)
	55-64	32.3% (203)	33.2% (610)
	65-74	39.6% (249)	41.4% (761)
	≥ 75	18.3% (115)	14.6% (268)
	Not reported	— (1)	— (3)
Marital status	Single	9.9% (62)	10.7% (195)
	Married	62.6% (393)	60.7% (1111)
	Common-law	5.6% (35)	4.9% (90)
	Living with partner	0.8% (5)	1.9% (35)
	Separated	1.9% (12)	3.2% (58)
	Divorced	9.6% (60)	9.5% (174)
	Widowed	9.7% (61)	9.1% (167)
	Not reported	— (1)	— (9)
Highest education obtained	Some or completed elementary school	0.3% (2)	1.0% (19)
	Some or completed high school	14.5% (91)	15.1% (277)
	Some or completed trade or community college program	25.0% (157)	26.6% (487)
	Some or completed university	52.5% (330)	49.7% (911)
	Other	7.8% (49)	7.6% (140)
	Not reported	— (0)	— (5)
Employment status	Working full-time	21.3% (133)	22.1% (401)
	Working part-time	8.5% (53)	8.2% (149)

Measure	Category	Hip (N=629)	Knee (N=1839)
	Not working, on benefits	2.7% (17)	3.0% (55)
	Not working, seeking work	1.3% (8)	1.7% (30)
	Retired	62.0% (386)	59.2% (1076)
	Homemaker	2.1% (13)	2.4% (44)
	Other	2.1% (13)	3.4% (62)
	Not reported	— (6)	— (22)
<b>Health factors</b>			
Smoking status	No	94.7% (595)	95.7% (1756)
	Yes	5.3% (33)	4.3% (79)
	Not reported	— (1)	— (4)
Body-mass index (BMI, kg/m <sup>2</sup> )	—	28.1 ± 5.9 (N = 622)	30.5 ± 6.6 (N = 1796)
BMI category	Underweight (< 18.5)	0.3% (2)	0.5% (9)
	Normal weight (18.5 - 24.9)	31.8% (198)	18.5% (333)
	Overweight (25 - 29.9)	37.9% (236)	34.5% (619)
	Obese (≥ 30)	29.9% (186)	46.5% (835)
	Not reported	— (7)	— (43)
Number of comorbid conditions (excluding osteoarthritis)	None	25.4% (160)	20.9% (384)
	1	30.2% (190)	29.0% (534)
	2	20.7% (130)	22.6% (416)
	3	14.5% (91)	15.7% (288)
	4 or more	9.2% (58)	11.8% (217)
Congestive heart failure	Yes	2.4% (15)	1.8% (33)
	Not reported	— (4)	— (8)
Heart attack (myocardial infarction)	Yes	4.2% (26)	3.0% (54)
	Not reported	— (3)	— (9)
High blood pressure	Yes	35.4% (222)	41.8% (769)
	Not reported	— (2)	— (0)
High cholesterol	Yes	27.4% (172)	32.1% (589)
	Not reported	— (1)	— (4)
Stroke or cerebrovascular accident	Yes	1.7% (11)	1.7% (32)
	Not reported	— (0)	— (6)
Asthma or chronic lung disease	Yes	8.6% (54)	10.2% (188)
	Not reported	— (0)	— (2)
Diabetes	Yes	7.5% (47)	10.2% (187)

Measure	Category	Hip (N=629)	Knee (N=1839)
	Not reported	— (2)	— (2)
Kidney disease	Yes	1.0% (6)	1.1% (21)
	Not reported	— (1)	— (6)
Liver disease	Yes	0.3% (2)	0.8% (15)
	Not reported	— (3)	— (4)
Anaemia or other blood disease	Yes	2.5% (16)	3.0% (55)
	Not reported	— (1)	— (3)
Stomach/intestinal ulcers	Yes	2.1% (13)	2.8% (51)
	Not reported	— (1)	— (8)
Depression	Yes	10.7% (67)	13.6% (250)
	Not reported	— (0)	— (4)
Cancer (excluding skin cancer)	Yes	3.4% (21)	4.7% (86)
	Not reported	— (3)	— (5)
Lower back pain	Yes	21.9% (137)	18.1% (332)
	Not reported	— (2)	— (9)
<b>History of hip/knee symptoms</b>			
Duration of symptoms in affected hip/knee (years)	—	4.3 ± 6.6 (N = 619)	6.6 ± 8.4 (N = 1807)
Categorized duration of symptoms (years)	Less than 1	18.3% (113)	14.1% (254)
	1 to 1.9	16.6% (103)	13.7% (248)
	2 to 4.9	37.6% (233)	28.6% (517)
	5 to 9.9	16.2% (100)	17.9% (323)
	10 or more	11.3% (70)	25.7% (465)
	Not reported	— (10)	— (32)
Previous injury to affected hip/knee	No	88.4% (556)	56.9% (1041)
	Yes	11.6% (73)	43.1% (788)
	Not reported	— (0)	— (10)
Are you so troubled by your hip/knee problems that you want surgery?	No	66.9% (417)	73.0% (1328)
	Yes	33.1% (206)	27.0% (490)
	Not reported	— (6)	— (21)
<b>Previous surgery on affected joint</b>			
Have you had surgery on your hip/knee?	No	95.5% (596)	76.5% (1399)
	Yes	4.5% (28)	23.5% (429)
	Not reported	— (5)	— (11)
	Joint replacement	2.9% (18)	2.7% (49)

Measure	Category	Hip (N=629)	Knee (N=1839)
Specify surgery type (all that apply):	Arthroscopic procedure	0.8% (5)	17.9% (328)
	Other surgery	1.0% (6)	5.9% (108)
	Not reported	— (5)	— (10)
<b>Physical activity</b>			
Are you afraid that your joints will be damaged from physical activity and exercise?	No	77.7% (488)	69.4% (1268)
	Yes	22.3% (140)	30.6% (558)
	Not reported	— (1)	— (13)
In a typical week, how many days have you been physically active at least 30 minutes per day?	None	6.8% (43)	7.8% (143)
	1 to 3	29.5% (185)	31.3% (574)
	4 to 6	40.0% (251)	36.4% (668)
	7	23.7% (149)	24.6% (451)
	Not reported	— (1)	— (3)
<b>Medications</b>			
Have you taken any medications including herbal or dietary supplements for your hip/knee in the last 3 months?	No	30.6% (191)	33.6% (615)
	Yes	69.4% (433)	66.4% (1213)
	Not reported	— (5)	— (11)
Specify medications (select all that apply):	Acetaminophen (e.g. Tylenol plain or extra strength)	46.4% (291)	41.6% (762)
	Non-steroidal anti-inflammatory drugs/NSAID (e.g. ibuprofen, Aleve, aspirin)	40.5% (254)	38.5% (705)
	Topical NSAID cream	22.3% (140)	29.2% (535)
	Glucosamine	20.9% (131)	18.4% (337)
	Hyaluronic acid injection into your joint	1.6% (10)	3.5% (65)
	Corticosteroid (cortisone) injection into your joint	8.3% (52)	13.8% (253)
	Morphine or other opioids (e.g. Tylenol No. 3)	5.4% (34)	4.6% (84)
	Tramadol	2.6% (16)	1.7% (31)
	Codeine	3.5% (22)	3.2% (59)
	Tricyclic antidepressants (for neuropathic pain)	1.4% (9)	1.8% (33)
	Anticonvulsants (e.g. Gabapentin)	2.4% (15)	1.8% (33)
	Methotrexate	0.5% (3)	0.4% (8)

Measure	Category	Hip (N=629)	Knee (N=1839)
	Herbal supplements	20.9% (131)	18.1% (331)
<b>Patient-reported scales</b>			
Numeric pain rating: hip/knee pain in the past month (0-10)	—	5.1 ± 2.2 (N = 629)	5.2 ± 2.2 (N = 1839)
HOOS-12/KOOS-12 subscale (0=extreme symptoms, 100=no symptoms)	Pain	51.6 ± 15.9 (N = 629)	51.6 ± 15.1 (N = 1839)
	Function	58.1 ± 18.8 (N = 629)	54.6 ± 18.5 (N = 1839)
	Quality of life	41.5 ± 18.1 (N = 629)	37.2 ± 17.1 (N = 1839)
EQ-5D utility score	—	0.7 ± 0.2 (N = 622)	0.7 ± 0.2 (N = 1820)
Arthritis Self-Efficacy Scale (1=lowest self-efficacy, 10=highest)	—	6.0 ± 1.8 (N = 628)	6.2 ± 1.8 (N = 1836)



**3-month survey: GLA:D Canada participation and satisfaction with program**

Measure	Category	Hip (N=320)	Knee (N=934)
How many education sessions did you attend? (0-3)	0	1.6% (5)	0.9% (8)
	1	15.0% (48)	20.6% (191)
	2	74.1% (237)	71.7% (664)
	3	9.4% (30)	6.8% (63)
	Not reported	— (0)	— (8)
How many exercise sessions did you attend? (0-12, categorized)	0-5	2.2% (7)	1.5% (14)
	6-10	12.5% (40)	13.1% (121)
	11-12	85.3% (272)	85.4% (792)
	Not reported	— (1)	— (7)
How much have you benefited from the GLA:D program?	1 - Not at all beneficial	1.3% (4)	1.6% (15)
	2	2.5% (8)	1.5% (14)
	3 - Neutral	11.3% (36)	10.7% (99)
	4	29.2% (93)	26.2% (243)
	5 - Very beneficial	55.8% (178)	60.0% (557)
	Not reported	— (1)	— (6)
How often do you use what you have learned from the GLA:D program in your daily life?	Never	1.9% (6)	2.2% (20)
	Every month	3.4% (11)	2.8% (26)
	Every week	29.7% (95)	33.8% (314)
	Every day	53.8% (172)	48.4% (450)
	Several times a day	8.4% (27)	8.2% (76)
	Don't know	2.8% (9)	4.7% (44)
	Not reported	— (0)	— (4)
How satisfied are you with the outcome of the GLA:D program?	1 - Not at all satisfied	2.9% (9)	1.6% (15)
	2	1.9% (6)	2.3% (21)
	3 - Neutral	12.7% (40)	11.5% (105)
	4	28.3% (89)	25.0% (229)
	5 - Very satisfied	54.1% (170)	59.6% (546)
	Not reported	— (6)	— (18)
Based on your experience, how much would you be willing to pay to take part in the GLA:D program?	\$100 or less	27.9% (85)	33.9% (302)
	\$101 to \$150	12.1% (37)	11.2% (100)
	\$151 to \$200	15.7% (48)	14.3% (128)
	\$201 to \$250	11.5% (35)	11.9% (106)
	\$251 to \$300	10.5% (32)	11.0% (98)

Measure	Category	Hip (N=320)	Knee (N=934)
	\$301 or more	22.3% (68)	17.7% (158)
	Not reported	— (15)	— (42)

## Participant outcomes

## Changes from initial status to follow-up

			Hip					Knee				
Measure	Time	Category	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Pain intensity												
Numeric pain rating	3M	—	319	5.0 ± 2.2	3.8 ± 2.3	-1.5, -1.0	<0.001 (<0.001)	928	5.1 ± 2.2	3.6 ± 2.3	-1.6, -1.3	<0.001 (<0.001)
	12M	—	141	4.7 ± 2.2	3.5 ± 2.5	-1.7, -0.7	<0.001 (<0.001)	352	5.0 ± 2.2	3.6 ± 2.4	-1.7, -1.1	<0.001 (<0.001)
HOOS-12/KOOS-12 scores												
Pain	3M	—	319	52.6 ± 15.4	59.9 ± 18.4	5.4, 9.2	<0.001 (<0.001)	929	53.4 ± 14.6	60.7 ± 16.9	6.4, 8.3	<0.001 (<0.001)
	12M	—	141	55.1 ± 15.3	65.8 ± 20.8	7.1, 14.4	<0.001 (<0.001)	352	54.9 ± 14.6	63.8 ± 18.2	7.1, 10.7	<0.001 (<0.001)
Function	3M	—	320	59.7 ± 18.3	65.7 ± 19.5	4.1, 7.9	<0.001 (<0.001)	928	56.7 ± 18.2	63.4 ± 19.6	5.6, 7.8	<0.001 (<0.001)
	12M	—	141	60.8 ± 18.1	69.4 ± 21.6	4.8, 12.4	<0.001 (<0.001)	352	57.8 ± 18.2	65.0 ± 20.9	5.0, 9.4	<0.001 (<0.001)
Quality of life	3M	—	319	42.3 ± 17.8	49.7 ± 20.3	5.6, 9.1	<0.001 (<0.001)	929	38.7 ± 16.6	48.0 ± 18.2	8.3, 10.3	<0.001 (<0.001)
	12M	—	141	43.3 ± 17.7	56.0 ± 23.3	8.7, 16.7	<0.001 (<0.001)	352	39.3 ± 16.7	52.2 ± 20.1	10.8, 15.0	<0.001 (<0.001)
Function tests												
30-second chair stand: # of stands	Last session	—	244	12.5 ± 5.0	15.8 ± 5.9	2.7, 3.9	<0.001 (<0.001)	714	12.1 ± 5.4	16.1 ± 6.6	3.7, 4.4	<0.001 (<0.001)
40-m walk test: speed (m/s)	Last session	—	181	1.4 ± 0.3	1.5 ± 0.3	0.09, 0.16	<0.001 (<0.001)	491	1.3 ± 0.3	1.5 ± 0.4	0.16, 0.20	<0.001 (<0.001)
Other outcomes												
In a typical week, how many days	3M	—	318	4.5 ± 2.0	4.6 ± 1.8	-0.06, 0.30	0.186 (0.319)	922	4.4 ± 2.2	4.5 ± 1.9	0.04, 0.29	0.009 (0.025)

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
have you been physically active at least 30 minutes per day?	12M	—	141	4.5 ± 2.0	4.5 ± 1.9	-0.32, 0.38	0.872 (0.955)	353	4.5 ± 2.2	4.6 ± 2.1	-0.02, 0.39	0.078 (0.173)
Body-mass index (kg/m <sup>2</sup> )	3M	—	313	27.1 ± 5.4	27.2 ± 5.7	-0.16, 0.25	0.668 (0.823)	899	29.8 ± 6.1	29.6 ± 5.9	-0.26, -0.03	0.012 (0.034)
	12M	—	139	27.3 ± 5.1	27.1 ± 5.1	-0.39, 0.05	0.124 (0.241)	346	29.4 ± 6.0	29.2 ± 6.4	-0.58, 0.21	0.349 (0.516)
BMI category: overweight or obese (≥ 25 kg/m <sup>2</sup> )	3M	—	313	63.3% (198)	62.0% (194)	-1.28%	0.453 (0.626)	899	79.0% (710)	79.2% (712)	0.22%	0.838 (0.942)
	12M	—	139	66.2% (92)	64.7% (90)	-1.44%	0.773 (0.900)	346	77.7% (269)	76.6% (265)	-1.16%	0.453 (0.626)
BMI category: obese (≥ 30 kg/m <sup>2</sup> )	3M	—	313	23.3% (73)	23.3% (73)	0.00%	1.000 (1.000)	899	41.8% (376)	41.5% (373)	-0.33%	0.760 (0.894)
	12M	—	139	22.3% (31)	20.9% (29)	-1.44%	0.683 (0.826)	346	37.3% (129)	33.8% (117)	-3.47%	0.025 (0.060)
EQ-5D-5L health utility	3M	—	314	0.72 ± 0.15	0.76 ± 0.15	0.02, 0.05	<0.001 (<0.001)	911	0.73 ± 0.15	0.77 ± 0.14	0.03, 0.05	<0.001 (<0.001)
	12M	—	137	0.74 ± 0.15	0.77 ± 0.15	0.01, 0.06	0.017 (0.046)	349	0.75 ± 0.14	0.78 ± 0.15	0.02, 0.05	<0.001 (<0.001)
OA Patient Knowledge score	3M	—	94	21.4 ± 4.1	22.2 ± 4.2	0.05, 1.54	0.037 (0.088)	235	21.1 ± 4.1	22.1 ± 3.9	0.52, 1.43	<0.001 (<0.001)
	12M	—	19	22.2 ± 4.2	22.7 ± 4.1	-1.8, 2.8	0.637 (0.793)	44	22.3 ± 4.0	22.8 ± 3.4	-0.68, 1.59	0.424 (0.606)
Arthritis Self-Efficacy Scale	3M	—	317	6.0 ± 1.8	6.5 ± 2.0	0.26, 0.69	<0.001 (<0.001)	928	6.3 ± 1.8	6.7 ± 1.9	0.29, 0.52	<0.001 (<0.001)
	12M	—	140	6.1 ± 1.7	6.5 ± 2.1	-0.04, 0.71	0.084 (0.183)	352	6.6 ± 1.8	7.0 ± 1.9	0.19, 0.59	<0.001 (<0.001)
Are you so troubled by your	3M	—	314	33.4% (105)	35.0% (110)	1.59%	0.542 (0.716)	910	26.4% (240)	23.1% (210)	-3.30%	0.014 (0.037)

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
hip/knee problems that you want surgery?	12M	—	139	28.8% (40)	37.4% (52)	8.63%	0.097 (0.206)	347	27.7% (96)	25.6% (89)	-2.02%	0.488 (0.653)
Are you afraid that your joints will be damaged from physical activity and exercise?	3M	—	319	21.3% (68)	10.3% (33)	-10.97%	<0.001 (<0.001)	916	29.0% (266)	15.9% (146)	-13.10%	<0.001 (<0.001)
	12M	—	142	19.7% (28)	12.0% (17)	-7.75%	0.063 (0.146)	347	31.1% (108)	16.7% (58)	-14.41%	<0.001 (<0.001)
How much have you benefited from the GLA:D program? <sup>d</sup>	12M	1 - Not at all beneficial	133	0.0% (0)	0.8% (1)	0.75%	<0.001 (<0.001)	313	0.6% (2)	2.6% (8)	1.92%	<0.001 (<0.001)
		2	133	3.0% (4)	3.0% (4)	0.00%		313	0.6% (2)	2.6% (8)	1.92%	
		3 - Neutral	133	9.0% (12)	22.6% (30)	13.53%		313	11.2% (35)	12.8% (40)	1.60%	
		4	133	30.8% (41)	29.3% (39)	-1.50%		313	25.6% (80)	29.1% (91)	3.51%	
		5 - Very beneficial	133	57.1% (76)	44.4% (59)	-12.78%		313	62.0% (194)	53.0% (166)	-8.95%	
How often do you use what you have learned from the GLA:D program in your daily life? <sup>d</sup>	12M	Never	133	0.8% (1)	3.0% (4)	2.26%	<0.001 (<0.001)	312	1.3% (4)	6.7% (21)	5.45%	<0.001 (<0.001)
		Every month	133	1.5% (2)	7.5% (10)	6.02%		312	2.9% (9)	9.3% (29)	6.41%	
		Every week	133	30.1% (40)	36.1% (48)	6.02%		312	27.9% (87)	28.5% (89)	0.64%	
		Every day	133	56.4% (75)	34.6% (46)	-21.80%		312	55.8% (174)	39.4% (123)	-16.35%	
		Several times a day	133	11.3% (15)	7.5% (10)	-3.76%		312	9.0% (28)	9.3% (29)	0.32%	
		Don't know <sup>e</sup>	133	0.0% (0)	11.3% (15)	11.28%		312	3.2% (10)	6.7% (21)	3.53%	

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Employment status: currently working (full- or part-time)	3M	—	316	23.7% (75)	22.8% (72)	-0.95%	0.546 (0.716)	917	26.2% (240)	25.6% (235)	-0.55%	0.560 (0.725)
	12M	—	141	23.4% (33)	24.1% (34)	0.71%	1.000 (1.000)	348	28.4% (99)	25.9% (90)	-2.59%	0.110 (0.221)
Employment status: Not working and on benefits	3M	—	316	1.6% (5)	3.5% (11)	1.90%	0.077 (0.173)	917	3.1% (28)	2.5% (23)	-0.55%	0.332 (0.512)
	12M	—	141	0.7% (1)	1.4% (2)	0.71%	1.000 (1.000)	348	1.4% (5)	2.3% (8)	0.86%	0.450 (0.626)
<b>Medications</b>												
Have you taken any medications for your hip/knee in the last 3 months?	3M	—	315	69.2% (218)	69.2% (218)	0.00%	1.000 (1.000)	917	65.8% (603)	62.9% (577)	-2.84%	0.117 (0.232)
	12M	—	138	73.2% (101)	60.9% (84)	-12.32%	0.022 (0.055)	346	69.1% (239)	56.6% (196)	-12.43%	<0.001 (<0.001)
Any injection(s) reported (hyaluronic acid, corticosteroid)	3M	—	318	7.2% (23)	7.9% (25)	0.63%	0.864 (0.954)	921	13.4% (123)	8.0% (74)	-5.32%	<0.001 (<0.001)
	12M	—	140	5.7% (8)	5.7% (8)	0.00%	1.000 (1.000)	347	15.3% (53)	11.2% (39)	-4.03%	0.099 (0.206)
Any opioid use reported (morphine, tramadol, codeine)	3M	—	318	7.9% (25)	10.7% (34)	2.83%	0.137 (0.257)	921	4.9% (45)	6.4% (59)	1.52%	0.110 (0.221)
	12M	—	140	8.6% (12)	10.7% (15)	2.14%	0.579 (0.743)	347	4.9% (17)	7.2% (25)	2.31%	0.201 (0.336)
Acetaminophen	3M	—	318	46.2% (147)	43.7% (139)	-2.52%	0.466 (0.636)	921	41.3% (380)	40.8% (376)	-0.43%	0.856 (0.953)
	12M	—	140	45.7% (64)	38.6% (54)	-7.14%	0.185 (0.319)	347	40.1% (139)	32.6% (113)	-7.49%	0.017 (0.046)
NSAID	3M	—	318	43.4% (138)	39.0% (124)	-4.40%	0.099 (0.206)	921	39.1% (360)	36.8% (339)	-2.28%	0.175 (0.312)
	12M	—	140	45.7% (64)	29.3% (41)	-16.43%	0.001 (0.004)	347	42.4% (147)	34.0% (118)	-8.36%	0.004 (0.014)

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Topical NSAID cream	3M	—	318	24.5% (78)	20.4% (65)	-4.09%	0.131 (0.251)	921	29.0% (267)	25.2% (232)	-3.80%	0.019 (0.048)
	12M	—	140	25.7% (36)	12.1% (17)	-13.57%	0.005 (0.015)	347	30.3% (105)	20.7% (72)	-9.51%	<0.001 (0.002)
Glucosamine	3M	—	318	22.0% (70)	20.8% (66)	-1.26%	0.617 (0.776)	921	20.0% (184)	17.3% (159)	-2.71%	0.019 (0.049)
	12M	—	140	21.4% (30)	15.7% (22)	-5.71%	0.201 (0.336)	347	21.0% (73)	14.1% (49)	-6.92%	<0.001 (0.003)
Hyaluronic acid injection	3M	—	318	0.9% (3)	2.2% (7)	1.26%	0.221 (0.364)	921	3.7% (34)	1.7% (16)	-1.95%	0.002 (0.006)
	12M	—	140	0.0% (0)	1.4% (2)	1.43%	<b>NC<sup>f</sup></b>	347	5.5% (19)	3.2% (11)	-2.31%	0.153 (0.278)
Corticosteroid injection	3M	—	318	7.2% (23)	6.3% (20)	-0.94%	0.719 (0.854)	921	12.2% (112)	7.1% (65)	-5.10%	<0.001 (<0.001)
	12M	—	140	5.7% (8)	4.3% (6)	-1.43%	0.789 (0.903)	347	13.3% (46)	10.1% (35)	-3.17%	0.178 (0.313)
Morphine or other opioids	3M	—	318	3.8% (12)	5.7% (18)	1.89%	0.264 (0.424)	921	3.1% (29)	4.7% (43)	1.52%	0.061 (0.143)
	12M	—	140	2.9% (4)	5.7% (8)	2.86%	0.343 (0.512)	347	3.5% (12)	2.9% (10)	-0.58%	0.814 (0.923)
Tramadol	3M	—	318	2.5% (8)	2.8% (9)	0.31%	1.000 (1.000)	921	1.1% (10)	1.3% (12)	0.22%	0.789 (0.903)
	12M	—	140	3.6% (5)	2.1% (3)	-1.43%	0.480 (0.648)	347	1.2% (4)	2.3% (8)	1.15%	0.343 (0.512)
Codeine	3M	—	318	3.1% (10)	4.4% (14)	1.26%	0.343 (0.512)	921	2.1% (19)	2.2% (20)	0.11%	1.000 (1.000)
	12M	—	140	4.3% (6)	4.3% (6)	0.00%	1.000 (1.000)	347	1.7% (6)	3.5% (12)	1.73%	0.149 (0.274)
Tricyclic antidepressants	3M	—	318	0.6% (2)	0.6% (2)	0.00%	1.000 (1.000)	921	0.9% (8)	1.3% (12)	0.43%	0.343 (0.512)

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
(for neuropathic pain)	12M	—	140	0.0% (0)	0.0% (0)	0.00%	<b>NC<sup>f</sup></b>	347	1.2% (4)	0.0% (0)	-1.15%	<b>NC<sup>f</sup></b>
Anticonvulsants	3M	—	318	2.8% (9)	1.6% (5)	-1.26%	0.134 (0.253)	921	1.3% (12)	1.4% (13)	0.11%	1.000 (1.000)
	12M	—	140	2.9% (4)	1.4% (2)	-1.43%	0.683 (0.826)	347	2.0% (7)	2.9% (10)	0.86%	0.371 (0.542)
Methotrexate	3M	—	318	0.6% (2)	0.0% (0)	-0.63%	<b>NC<sup>f</sup></b>	921	0.3% (3)	0.1% (1)	-0.22%	0.617 (0.776)
	12M	—	140	0.0% (0)	0.0% (0)	0.00%	<b>NC<sup>f</sup></b>	347	0.6% (2)	0.6% (2)	0.00%	1.000 (1.000)
Herbal supplements	3M	—	318	22.6% (72)	21.4% (68)	-1.26%	0.694 (0.831)	921	17.3% (159)	15.7% (145)	-1.52%	0.268 (0.426)
	12M	—	140	22.9% (32)	18.6% (26)	-4.29%	0.391 (0.565)	347	17.0% (59)	14.4% (50)	-2.59%	0.243 (0.396)

<sup>a</sup>Number of participants with valid initial (i.e. baseline, except for function tests) data and follow-up data for given measure

<sup>b</sup>Continuous measures: 95% confidence interval for paired difference between outcome and initial status; categorical measures: percentage difference between outcome and initial status.

<sup>c</sup>Continuous measures: paired t-test; binary measures: McNemar's test of paired proportions; ordinal measures (perceived benefit from GLA:D Canada, and frequency of knowledge use): paired Wilcoxon signed-rank test. Null hypothesis = no within-subject change in the given outcome. FDR = False discovery rate (p-value correction for multiple comparisons).

<sup>d</sup>Comparison: 12-month versus 3-month response

<sup>e</sup>"Don't know" responses were omitted from hypothesis tests.

<sup>f</sup>Not calculable



## Categorized outcome measures

		Hip		Knee	
Measure	Outcome category	3M	12M	3M	12M
Pain intensity					
Numeric pain rating (0-10)	No change or worsened	40.4% (129)	41.8% (59)	34.5% (320)	38.6% (136)
	Negligible improvement (0.1 - 14.9%)	1.3% (4)	0.7% (1)	5.1% (47)	5.1% (18)
	Possible improvement (15 - 29.9%)	12.5% (40)	11.3% (16)	10.5% (97)	6.8% (24)
	Clinically important improvement (≥ 30% and/or zero pain)	45.8% (146)	46.1% (65)	50.0% (464)	49.4% (174)
HOOS-12/KOOS-12 scores (0-100)					
Pain	No change or worsened	43.9% (140)	39.7% (56)	41.3% (384)	38.6% (136)
	Negligible improvement (0.1 - 4.9 pt)	0.0% (0)	0.0% (0)	0.3% (3)	0.3% (1)
	Possible improvement (5 - 9.9 pt)	18.5% (59)	13.5% (19)	17.4% (162)	14.8% (52)
	Clinically important improvement (≥ 10 pt and/or perfect score)	37.6% (120)	46.8% (66)	40.9% (380)	46.3% (163)
Function	No change or worsened	43.8% (140)	41.1% (58)	42.2% (392)	44.9% (158)
	Negligible improvement (0.1 - 4.9 pt)	0.6% (2)	0.7% (1)	0.1% (1)	0.0% (0)
	Possible improvement (5 - 9.9 pt)	16.2% (52)	12.8% (18)	15.4% (143)	11.1% (39)
	Clinically important improvement (≥ 10 pt and/or perfect score)	39.4% (126)	45.4% (64)	42.2% (392)	44.0% (155)
Quality of life	No change or worsened	43.9% (140)	32.6% (46)	36.2% (336)	33.2% (117)
	Negligible improvement (0.1 - 4.9 pt)	0.6% (2)	0.0% (0)	0.4% (4)	0.3% (1)

Measure	Outcome category	Hip		Knee	
		3M	12M	3M	12M
	Possible improvement (5 - 9.9 pt)	18.2% (58)	17.7% (25)	17.7% (164)	11.1% (39)
	Clinically important improvement ( $\geq 10$ pt and/or perfect score)	37.3% (119)	49.6% (70)	45.7% (425)	55.4% (195)
<b>Function tests</b>					
30-second chair stand: # of stands	No change or worsened	21.7% (53)	—	17.2% (123)	—
	Negligible improvement (0.1 to 1.9 stands)	13.5% (33)	—	9.5% (68)	—
	Clinically important improvement ( $\geq 2$ stands)	64.8% (158)	—	73.2% (523)	—
40m walking test: walking speed	No change or worsened	25.4% (46)	—	17.7% (87)	—
	Negligible improvement (0.1 to 0.19 m/s)	42.5% (77)	—	41.1% (202)	—
	Clinically important improvement ( $\geq 0.2$ m/s)	32.0% (58)	—	41.1% (202)	—
<b>Knowledge/self-efficacy</b>					
OA Patient Knowledge Questionnaire (0-30)	No change or worsened	44.7% (42)	47.4% (9)	42.6% (100)	56.8% (25)
	Negligible improvement (0.1 - 9.9%)	22.3% (21)	21.1% (4)	20.4% (48)	13.6% (6)
	Possible improvement (10 - 19.9%)	12.8% (12)	10.5% (2)	20.9% (49)	13.6% (6)
	Substantial improvement ( $\geq 20\%$ and/or perfect score)	20.2% (19)	21.1% (4)	16.2% (38)	15.9% (7)
Arthritis Self-Efficacy Scale (1-10)	No change or worsened	40.7% (129)	43.6% (61)	41.0% (380)	42.6% (150)
	Negligible improvement (0.1 - 9.9%)	9.8% (31)	8.6% (12)	11.7% (108)	10.2% (36)

Measure	Outcome category	Hip		Knee	
		3M	12M	3M	12M
	Possible improvement (10 - 19.9%)	14.2% (45)	9.3% (13)	10.8% (100)	11.4% (40)
	Substantial improvement (≥ 20% and/or perfect score)	35.3% (112)	38.6% (54)	36.6% (339)	35.8% (126)
	Not reported	—	—	— (1)	—

## Joint surgery after enrollment

Measure	Time point	Response	Hip 3M: N=320 12M: N=156	Knee 3M: N=934 12M: N=368
Have you had surgery on your hip/knee since you first started the GLA:D Canada education and exercise program?	3M	No	94.9% (300)	97.7% (894)
		Yes	5.1% (16)	2.3% (21)
		Not reported	— (4)	— (19)
	12M	No	70.5% (110)	84.7% (310)
		Yes	29.5% (46)	15.3% (56)
		Not reported	— (0)	— (2)
Any joint replacement	3M	No	94.9% (300)	98.1% (898)
		Yes	5.1% (16)	1.9% (17)
		Not reported	— (4)	— (19)
	12M	No	70.5% (110)	86.0% (312)
		Yes	29.5% (46)	14.0% (51)
		Not reported	— (0)	— (5)
Any arthroscopic procedure	3M	No	99.7% (315)	99.6% (911)
		Yes	0.3% (1)	0.4% (4)
		Not reported	— (4)	— (19)
	12M	No	99.3% (142)	97.7% (346)
		Yes	0.7% (1)	2.3% (8)
		Not reported	— (13)	— (14)
Any other procedure	3M	No	100.0% (316)	99.8% (913)
		Yes	0.0% (0)	0.2% (2)
		Not reported	— (4)	— (19)
	12M	No	100.0% (142)	99.4% (351)
		Yes	0.0% (0)	0.6% (2)
		Not reported	— (14)	— (15)

## ALBERTA

## Baseline characteristics of GLA:D participants

Measure	Category	Hip (N=236)	Knee (N=551)
<b>Demographics</b>			
Year of enrollment	2017	9.7% (23)	6.7% (37)
	2018	39.0% (92)	35.9% (198)
	2019	51.3% (121)	57.4% (316)
Gender	Female	75.0% (177)	78.5% (432)
	Male	25.0% (59)	21.5% (118)
	Not reported	— (0)	— (1)
Age (y)	—	65.1 ± 8.2 (N = 236)	64.7 ± 8.0 (N = 550)
Age group	< 55	10.2% (24)	10.0% (55)
	55-64	38.6% (91)	38.7% (213)
	65-74	39.4% (93)	40.4% (222)
	≥ 75	11.9% (28)	10.9% (60)
	Not reported	— (0)	— (1)
Marital status	Single	6.4% (15)	7.6% (42)
	Married	74.9% (176)	71.1% (392)
	Common-law	3.4% (8)	3.8% (21)
	Living with partner	0.9% (2)	0.9% (5)
	Separated	0.9% (2)	1.5% (8)
	Divorced	6.8% (16)	6.9% (38)
	Widowed	6.8% (16)	8.2% (45)
	Not reported	— (1)	— (0)
Highest education obtained	Some or completed elementary school	0.4% (1)	0.7% (4)
	Some or completed high school	17.0% (40)	18.4% (101)
	Some or completed trade or community college program	33.2% (78)	32.2% (177)
	Some or completed university	44.7% (105)	41.1% (226)
	Other	4.7% (11)	7.6% (42)
	Not reported	— (1)	— (1)
Employment status	Working full-time	17.6% (41)	18.1% (99)
	Working part-time	12.0% (28)	10.9% (60)
	Not working, on benefits	3.9% (9)	3.8% (21)

Measure	Category	Hip (N=236)	Knee (N=551)
	Not working, seeking work	0.9% (2)	1.3% (7)
	Retired	56.2% (131)	58.6% (321)
	Homemaker	3.9% (9)	4.6% (25)
	Other	5.6% (13)	2.7% (15)
	Not reported	— (3)	— (3)
<b>Health factors</b>			
Smoking status	No	97.0% (229)	96.6% (532)
	Yes	3.0% (7)	3.4% (19)
Body-mass index (BMI, kg/m <sup>2</sup> )	—	30.1 ± 6.4 (N = 232)	31.8 ± 7.0 (N = 544)
BMI category	Underweight (< 18.5)	0.4% (1)	0.6% (3)
	Normal weight (18.5 - 24.9)	18.5% (43)	13.8% (75)
	Overweight (25 - 29.9)	39.7% (92)	30.3% (165)
	Obese (≥ 30)	41.4% (96)	55.3% (301)
	Not reported	— (4)	— (7)
Number of comorbid conditions (excluding osteoarthritis)	None	18.2% (43)	18.0% (99)
	1	30.5% (72)	28.5% (157)
	2	20.3% (48)	22.3% (123)
	3	18.6% (44)	16.0% (88)
	4 or more	12.3% (29)	15.2% (84)
Congestive heart failure	Yes	1.3% (3)	1.3% (7)
	Not reported	— (1)	— (3)
Heart attack (myocardial infarction)	Yes	1.7% (4)	2.6% (14)
	Not reported	— (0)	— (2)
High blood pressure	Yes	39.8% (94)	45.2% (248)
	Not reported	— (0)	— (2)
High cholesterol	Yes	25.0% (59)	27.1% (149)
	Not reported	— (0)	— (1)
Stroke or cerebrovascular accident	Yes	1.7% (4)	1.6% (9)
	Not reported	— (0)	— (3)
Asthma or chronic lung disease	Yes	8.9% (21)	12.7% (70)
Diabetes	Yes	9.8% (23)	11.3% (62)
	Not reported	— (1)	— (0)
Kidney disease	Yes	1.7% (4)	1.3% (7)
	Not reported	— (0)	— (1)

Measure	Category	Hip (N=236)	Knee (N=551)
Liver disease	Yes	0.4% (1)	0.5% (3)
	Not reported	— (0)	— (2)
Anaemia or other blood disease	Yes	1.7% (4)	4.0% (22)
	Not reported	— (0)	— (1)
Stomach/intestinal ulcers	Yes	3.0% (7)	4.0% (22)
	Not reported	— (0)	— (1)
Depression	Yes	17.5% (41)	17.0% (93)
	Not reported	— (2)	— (4)
Cancer (excluding skin cancer)	Yes	5.1% (12)	3.4% (19)
	Not reported	— (1)	— (0)
Lower back pain	Yes	31.1% (73)	21.4% (117)
	Not reported	— (1)	— (4)
<b>History of hip/knee symptoms</b>			
Duration of symptoms in affected hip/knee (years)	—	5.0 ± 6.4 (N = 235)	6.8 ± 7.9 (N = 547)
Categorized duration of symptoms (years)	Less than 1	10.2% (24)	10.1% (55)
	1 to 1.9	17.9% (42)	11.9% (65)
	2 to 4.9	37.9% (89)	30.0% (164)
	5 to 9.9	20.4% (48)	20.8% (114)
	10 or more	13.6% (32)	27.2% (149)
	Not reported	— (1)	— (4)
Previous injury to affected hip/knee	No	85.5% (201)	56.7% (312)
	Yes	14.5% (34)	43.3% (238)
	Not reported	— (1)	— (1)
Are you so troubled by your hip/knee problems that you want surgery?	No	65.1% (151)	66.8% (364)
	Yes	34.9% (81)	33.2% (181)
	Not reported	— (4)	— (6)
<b>Previous surgery on affected joint</b>			
Have you had surgery on your hip/knee?	No	94.5% (223)	79.0% (433)
	Yes	5.5% (13)	21.0% (115)
	Not reported	— (0)	— (3)
Specify surgery type (all that apply):	Joint replacement	3.8% (9)	2.0% (11)
	Arthroscopic procedure	0.4% (1)	15.5% (85)
	Other surgery	1.3% (3)	7.1% (39)
	Not reported	— (0)	— (3)

Measure	Category	Hip (N=236)	Knee (N=551)
<b>Physical activity</b>			
Are you afraid that your joints will be damaged from physical activity and exercise?	No	75.7% (178)	68.6% (375)
	Yes	24.3% (57)	31.4% (172)
	Not reported	— (1)	— (4)
In a typical week, how many days have you been physically active at least 30 minutes per day?	None	6.8% (16)	10.2% (56)
	1 to 3	40.0% (94)	36.9% (203)
	4 to 6	37.9% (89)	37.3% (205)
	7	15.3% (36)	15.6% (86)
	Not reported	— (1)	— (1)
<b>Medications</b>			
Have you taken any medications including herbal or dietary supplements for your hip/knee in the last 3 months?	No	24.4% (57)	27.6% (151)
	Yes	75.6% (177)	72.4% (396)
	Not reported	— (2)	— (4)
Specify medications (select all that apply):	Acetaminophen (e.g. Tylenol plain or extra strength)	47.2% (110)	50.3% (275)
	Non-steroidal anti-inflammatory drugs/NSAID (e.g. ibuprofen, Aleve, aspirin)	48.1% (112)	44.2% (242)
	Topical NSAID cream	36.5% (85)	40.8% (223)
	Glucosamine	24.5% (57)	24.9% (136)
	Hyaluronic acid injection into your joint	2.6% (6)	5.1% (28)
	Corticosteroid (cortisone) injection into your joint	20.6% (48)	20.1% (110)
	Morphine or other opioids (e.g. Tylenol No. 3)	10.3% (24)	5.5% (30)
	Tramadol	6.4% (15)	7.5% (41)
	Codeine	6.4% (15)	4.0% (22)
	Tricyclic antidepressants (for neuropathic pain)	1.7% (4)	2.7% (15)
	Anticonvulsants (e.g. Gabapentin)	4.3% (10)	3.1% (17)
	Methotrexate	0.4% (1)	0.7% (4)
	Herbal supplements	26.6% (62)	22.9% (125)
<b>Patient-reported scales</b>			



Measure	Category	Hip (N=236)	Knee (N=551)
Numeric pain rating: hip/knee pain in the past month (0-10)	—	5.6 ± 2.1 (N = 236)	5.3 ± 2.1 (N = 551)
HOOS-12/KOOS-12 subscale (0=extreme symptoms, 100=no symptoms)	Pain	47.9 ± 15.7 (N = 236)	49.7 ± 15.3 (N = 551)
	Function	52.5 ± 19.2 (N = 236)	53.7 ± 19.4 (N = 551)
	Quality of life	36.6 ± 18.8 (N = 236)	35.6 ± 17.5 (N = 551)
EQ-5D utility score	—	0.6 ± 0.2 (N = 233)	0.7 ± 0.2 (N = 548)
Arthritis Self-Efficacy Scale (1=lowest self-efficacy, 10=highest)	—	5.7 ± 1.8 (N = 236)	6.0 ± 1.8 (N = 550)

### 3-month survey: GLA:D Canada participation and satisfaction with program

Measure	Category	Hip (N=138)	Knee (N=292)
How many education sessions did you attend? (0-3)	0	0.7% (1)	1.4% (4)
	1	22.6% (31)	19.7% (57)
	2	66.4% (91)	67.2% (195)
	3	10.2% (14)	11.7% (34)
	Not reported	— (1)	— (2)
How many exercise sessions did you attend? (0-12, categorized)	0-5	1.4% (2)	0.3% (1)
	6-10	23.9% (33)	27.6% (80)
	11-12	74.6% (103)	72.1% (209)
	Not reported	— (0)	— (2)
How much have you benefited from the GLA:D program?	1 - Not at all beneficial	0.7% (1)	0.7% (2)
	2	0.7% (1)	1.7% (5)
	3 - Neutral	18.1% (25)	8.6% (25)
	4	34.1% (47)	32.8% (95)
	5 - Very beneficial	46.4% (64)	56.2% (163)
	Not reported	— (0)	— (2)
How often do you use what you have learned from the GLA:D program in your daily life?	Never	1.5% (2)	1.7% (5)
	Every month	5.1% (7)	4.2% (12)
	Every week	32.8% (45)	31.8% (92)
	Every day	45.3% (62)	48.4% (140)
	Several times a day	10.2% (14)	11.8% (34)
	Don't know	5.1% (7)	2.1% (6)
	Not reported	— (1)	— (3)
How satisfied are you with the outcome of the GLA:D program?	1 - Not at all satisfied	0.7% (1)	0.7% (2)
	2	2.9% (4)	1.8% (5)
	3 - Neutral	18.8% (26)	11.9% (34)
	4	37.0% (51)	29.8% (85)
	5 - Very satisfied	40.6% (56)	55.8% (159)
	Not reported	— (0)	— (7)
Based on your experience, how much would you be willing to pay to take part in the GLA:D program?	\$100 or less	34.4% (45)	24.5% (69)
	\$101 to \$150	13.0% (17)	7.4% (21)
	\$151 to \$200	9.9% (13)	11.3% (32)
	\$201 to \$250	8.4% (11)	14.9% (42)
	\$251 to \$300	13.0% (17)	14.9% (42)

Measure	Category	Hip (N=138)	Knee (N=292)
	\$301 to \$400	15.3% (20)	21.3% (60)
	\$401 to \$500	2.3% (3)	3.2% (9)
	\$501 to \$600	3.1% (4)	1.8% (5)
	\$601 to \$700	0.8% (1)	0.4% (1)
	\$701 or more	0.0% (0)	0.4% (1)
	Not reported	— (7)	— (10)

## Participant outcomes

## Changes from initial status to follow-up

			Hip					Knee				
Measure	Time	Category	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Pain intensity												
Numeric pain rating	3M	—	138	5.6 ± 2.0	4.9 ± 2.1	-1.1, -0.3	<0.001 (0.004)	290	5.2 ± 2.1	4.0 ± 2.3	-1.5, -1.0	<0.001 (<0.001)
	12M	—	59	5.4 ± 2.2	4.2 ± 2.5	-1.9, -0.3	0.006 (0.027)	148	5.1 ± 2.1	4.1 ± 2.4	-1.4, -0.6	<0.001 (<0.001)
HOOS-12/KOOS-12 scores												
Pain	3M	—	137	47.6 ± 15.1	50.9 ± 17.0	0.79, 5.81	0.010 (0.035)	290	50.7 ± 15.4	56.7 ± 16.9	4.5, 7.5	<0.001 (<0.001)
	12M	—	59	48.9 ± 15.3	56.6 ± 18.8	2.2, 13.0	0.007 (0.027)	148	51.1 ± 16.3	59.0 ± 19.9	5.1, 10.7	<0.001 (<0.001)
Function	3M	—	137	52.3 ± 18.1	56.6 ± 19.9	1.6, 6.8	0.002 (0.008)	290	55.1 ± 19.0	60.3 ± 19.4	3.5, 7.0	<0.001 (<0.001)
	12M	—	59	55.1 ± 18.4	61.7 ± 21.1	0.69, 12.59	0.029 (0.085)	148	56.6 ± 20.1	62.9 ± 22.4	3.2, 9.4	<0.001 (<0.001)
Quality of life	3M	—	137	36.4 ± 18.1	39.9 ± 21.3	0.84, 6.19	0.010 (0.035)	290	35.5 ± 17.0	43.9 ± 19.0	6.7, 10.1	<0.001 (<0.001)
	12M	—	58	40.1 ± 19.0	45.3 ± 22.6	-1.5, 11.9	0.127 (0.328)	148	35.8 ± 17.6	46.9 ± 21.6	8.1, 14.1	<0.001 (<0.001)
Function tests												
30-second chair stand: # of stands	Last session	—	97	12.5 ± 5.4	16.0 ± 8.5	2.2, 4.9	<0.001 (<0.001)	227	12.9 ± 6.5	16.6 ± 7.0	3.1, 4.3	<0.001 (<0.001)
40-m walk test: speed (m/s)	Last session	—	59	1.3 ± 0.4	1.4 ± 0.4	0.06, 0.19	<0.001 (<0.001)	163	1.2 ± 0.4	1.4 ± 0.5	0.08, 0.15	<0.001 (<0.001)

			Hip					Knee				
Measure	Time	Category	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Other outcomes												
In a typical week, how many days have you been physically active at least 30 minutes per day?	3M	—	138	3.7 ± 2.1	4.2 ± 2.0	0.12, 0.83	0.008 (0.033)	289	4.1 ± 2.0	4.4 ± 1.9	0.10, 0.52	0.004 (0.018)
	12M	—	58	3.7 ± 2.1	4.0 ± 2.2	-0.19, 0.75	0.244 (0.493)	147	4.0 ± 2.1	4.4 ± 2.0	0.04, 0.70	0.030 (0.085)
Body-mass index (kg/m²)	3M	—	134	29.7 ± 6.1	29.8 ± 6.7	-0.56, 0.72	0.804 (1.000)	284	31.8 ± 6.6	31.8 ± 7.3	-0.42, 0.40	0.951 (1.000)
	12M	—	59	29.2 ± 5.5	29.6 ± 7.1	-1.1, 1.9	0.582 (0.890)	147	31.8 ± 6.3	31.2 ± 6.1	-1.1, -0.3	0.001 (0.008)
BMI category: overweight or obese (≥ 25 kg/m²)	3M	—	134	81.3% (109)	82.8% (111)	1.49%	0.683 (0.951)	284	86.6% (246)	87.0% (247)	0.35%	1.000 (1.000)
	12M	—	59	78.0% (46)	79.7% (47)	1.69%	1.000 (1.000)	147	87.8% (129)	84.4% (124)	-3.40%	0.182 (0.421)
BMI category: obese (≥ 30 kg/m²)	3M	—	134	40.3% (54)	38.8% (52)	-1.49%	0.683 (0.951)	284	56.0% (159)	55.3% (157)	-0.70%	0.789 (1.000)
	12M	—	59	33.9% (20)	30.5% (18)	-3.39%	0.617 (0.922)	147	55.8% (82)	53.7% (79)	-2.04%	0.546 (0.873)
EQ-5D-5L health utility	3M	—	133	0.65 ± 0.19	0.67 ± 0.20	-0.01, 0.04	0.326 (0.609)	289	0.70 ± 0.17	0.75 ± 0.17	0.03, 0.06	<0.001 (<0.001)
	12M	—	58	0.69 ± 0.18	0.69 ± 0.20	-0.06, 0.06	0.972 (1.000)	145	0.71 ± 0.17	0.75 ± 0.18	0.01, 0.06	0.002 (0.010)
OA Patient Knowledge score	3M	—	41	22.4 ± 4.9	23.4 ± 3.3	-0.07, 2.17	0.066 (0.183)	86	22.1 ± 3.8	22.4 ± 3.8	-0.26, 0.89	0.282 (0.543)
Arthritis Self-Efficacy Scale	3M	—	138	5.8 ± 1.8	5.6 ± 2.0	-0.49, 0.15	0.290 (0.549)	289	6.0 ± 1.8	6.5 ± 1.9	0.25, 0.66	<0.001 (<0.001)
	12M	—	58	5.9 ± 1.8	6.1 ± 2.1	-0.29, 0.85	0.337 (0.611)	148	6.1 ± 1.9	6.6 ± 2.2	0.23, 0.85	<0.001 (0.004)

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Are you so troubled by your hip/knee problems that you want surgery?	3M	—	134	34.3% (46)	43.3% (58)	8.96%	0.010 (0.035)	284	32.7% (93)	29.2% (83)	-3.52%	0.165 (0.395)
	12M	—	56	37.5% (21)	42.9% (24)	5.36%	0.579 (0.890)	145	31.0% (45)	29.0% (42)	-2.07%	0.700 (0.956)
Are you afraid that your joints will be damaged from physical activity and exercise?	3M	—	136	22.8% (31)	14.0% (19)	-8.82%	0.025 (0.075)	285	33.7% (96)	16.5% (47)	-17.19%	<0.001 (<0.001)
	12M	—	58	29.3% (17)	19.0% (11)	-10.34%	0.181 (0.421)	146	31.5% (46)	20.5% (30)	-10.96%	0.015 (0.049)
How much have you benefited from the GLA:D program? <sup>d</sup>	12M	1 - Not at all beneficial	55	1.8% (1)	1.8% (1)	0.00%	0.018 (0.058)	130	0.8% (1)	1.5% (2)	0.77%	0.010 (0.035)
		2	55	0.0% (0)	1.8% (1)	1.82%		130	2.3% (3)	4.6% (6)	2.31%	
		3 - Neutral	55	12.7% (7)	21.8% (12)	9.09%		130	8.5% (11)	13.8% (18)	5.38%	
		4	55	40.0% (22)	43.6% (24)	3.64%		130	35.4% (46)	30.0% (39)	-5.38%	
		5 - Very beneficial	55	45.5% (25)	30.9% (17)	-14.55%		130	53.1% (69)	50.0% (65)	-3.08%	
How often do you use what you have learned from the GLA:D program in your daily life? <sup>d</sup>	12M	Never	55	1.8% (1)	7.3% (4)	5.45%	0.002 (0.010)	130	1.5% (2)	3.8% (5)	2.31%	<0.001 (<0.001)
		Every month	55	3.6% (2)	9.1% (5)	5.45%		130	3.1% (4)	11.5% (15)	8.46%	
		Every week	55	30.9% (17)	27.3% (15)	-3.64%		130	36.2% (47)	36.9% (48)	0.77%	
		Every day	55	49.1% (27)	41.8% (23)	-7.27%		130	47.7% (62)	39.2% (51)	-8.46%	
		Several times a day	55	9.1% (5)	3.6% (2)	-5.45%		130	10.0% (13)	4.6% (6)	-5.38%	

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
		Don't know <sup>e</sup>	55	5.5% (3)	10.9% (6)	5.45%		130	1.5% (2)	3.8% (5)	2.31%	
Employment status: currently working (full- or part-time)	3M	—	136	28.7% (39)	29.4% (40)	0.74%	1.000 (1.000)	288	25.3% (73)	23.3% (67)	-2.08%	0.211 (0.471)
	12M	—	59	35.6% (21)	35.6% (21)	0.00%	1.000 (1.000)	147	30.6% (45)	26.5% (39)	-4.08%	0.149 (0.364)
Employment status: Not working and on benefits	3M	—	136	3.7% (5)	3.7% (5)	0.00%	1.000 (1.000)	288	3.5% (10)	2.4% (7)	-1.04%	0.248 (0.493)
	12M	—	59	1.7% (1)	0.0% (0)	-1.69%	<b>NC<sup>f</sup></b>	147	3.4% (5)	1.4% (2)	-2.04%	0.248 (0.493)
<b>Medications</b>												
Have you taken any medications for your hip/knee in the last 3 months?	3M	—	136	74.3% (101)	76.5% (104)	2.21%	0.689 (0.951)	288	72.2% (208)	70.1% (202)	-2.08%	0.550 (0.873)
	12M	—	59	71.2% (42)	67.8% (40)	-3.39%	0.814 (1.000)	148	77.0% (114)	64.2% (95)	-12.84%	0.004 (0.018)
Any injection(s) reported (hyaluronic acid, corticosteroid)	3M	—	136	25.0% (34)	19.9% (27)	-5.15%	0.230 (0.487)	287	24.0% (69)	12.9% (37)	-11.15%	<0.001 (<0.001)
	12M	—	59	18.6% (11)	11.9% (7)	-6.78%	0.480 (0.801)	148	33.1% (49)	11.5% (17)	-21.62%	<0.001 (<0.001)
Any opioid use reported (morphine, tramadol, codeine)	3M	—	136	16.2% (22)	14.7% (20)	-1.47%	0.814 (1.000)	287	12.5% (36)	9.4% (27)	-3.14%	0.110 (0.290)
	12M	—	59	13.6% (8)	16.9% (10)	3.39%	0.773 (1.000)	148	11.5% (17)	12.8% (19)	1.35%	0.803 (1.000)
Acetaminophen	3M	—	136	52.2% (71)	51.5% (70)	-0.74%	1.000 (1.000)	287	51.9% (149)	47.7% (137)	-4.18%	0.230 (0.487)
	12M	—	59	50.8% (30)	47.5% (28)	-3.39%	0.823 (1.000)	148	52.0% (77)	41.2% (61)	-10.81%	0.024 (0.074)
NSAID	3M	—	136	47.1% (64)	47.8% (65)	0.74%	1.000 (1.000)	287	44.3% (127)	39.7% (114)	-4.53%	0.143 (0.362)

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
	12M	—	59	44.1% (26)	44.1% (26)	0.00%	1.000 (1.000)	148	48.0% (71)	36.5% (54)	-11.49%	0.007 (0.027)
Topical NSAID cream	3M	—	136	39.0% (53)	39.0% (53)	0.00%	1.000 (1.000)	287	40.4% (116)	39.4% (113)	-1.05%	0.812 (1.000)
	12M	—	59	40.7% (24)	37.3% (22)	-3.39%	0.752 (1.000)	148	47.3% (70)	33.8% (50)	-13.51%	0.006 (0.027)
Glucosamine	3M	—	136	22.8% (31)	26.5% (36)	3.68%	0.332 (0.611)	287	27.2% (78)	24.4% (70)	-2.79%	0.280 (0.543)
	12M	—	59	18.6% (11)	16.9% (10)	-1.69%	1.000 (1.000)	148	31.8% (47)	24.3% (36)	-7.43%	0.072 (0.196)
Hyaluronic acid injection	3M	—	136	3.7% (5)	4.4% (6)	0.74%	1.000 (1.000)	287	4.9% (14)	4.2% (12)	-0.70%	0.831 (1.000)
	12M	—	59	3.4% (2)	3.4% (2)	0.00%	1.000 (1.000)	148	6.1% (9)	2.7% (4)	-3.38%	0.228 (0.487)
Corticosteroid injection	3M	—	136	22.8% (31)	19.1% (26)	-3.68%	0.424 (0.758)	287	20.6% (59)	10.8% (31)	-9.76%	<0.001 (<0.001)
	12M	—	59	16.9% (10)	10.2% (6)	-6.78%	0.453 (0.789)	148	28.4% (42)	10.1% (15)	-18.24%	<0.001 (<0.001)
Morphine or other opioids	3M	—	136	8.1% (11)	5.9% (8)	-2.21%	0.546 (0.873)	287	5.6% (16)	4.5% (13)	-1.05%	0.628 (0.927)
	12M	—	59	5.1% (3)	8.5% (5)	3.39%	0.683 (0.951)	148	3.4% (5)	8.8% (13)	5.41%	0.027 (0.079)
Tramadol	3M	—	136	8.1% (11)	8.8% (12)	0.74%	1.000 (1.000)	287	7.3% (21)	3.8% (11)	-3.48%	0.009 (0.035)
	12M	—	59	6.8% (4)	10.2% (6)	3.39%	0.724 (0.978)	148	8.8% (13)	4.7% (7)	-4.05%	0.149 (0.364)
Codeine	3M	—	136	3.7% (5)	1.5% (2)	-2.21%	0.248 (0.493)	287	4.2% (12)	3.1% (9)	-1.05%	0.546 (0.873)
	12M	—	59	3.4% (2)	1.7% (1)	-1.69%	1.000 (1.000)	148	2.0% (3)	2.7% (4)	0.68%	1.000 (1.000)



Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Tricyclic antidepressants (for neuropathic pain)	3M	—	136	2.9% (4)	1.5% (2)	-1.47%	0.617 (0.922)	287	3.1% (9)	2.8% (8)	-0.35%	1.000 (1.000)
	12M	—	59	1.7% (1)	3.4% (2)	1.69%	1.000 (1.000)	148	3.4% (5)	3.4% (5)	0.00%	1.000 (1.000)
Anticonvulsants	3M	—	136	3.7% (5)	1.5% (2)	-2.21%	0.450 (0.789)	287	2.4% (7)	2.1% (6)	-0.35%	1.000 (1.000)
	12M	—	59	5.1% (3)	1.7% (1)	-3.39%	0.480 (0.801)	148	2.0% (3)	3.4% (5)	1.35%	0.480 (0.801)
Methotrexate	3M	—	136	0.0% (0)	0.0% (0)	0.00%	NC <sup>f</sup>	287	1.0% (3)	0.7% (2)	-0.35%	1.000 (1.000)
	12M	—	59	0.0% (0)	1.7% (1)	1.69%	NC <sup>f</sup>	148	0.7% (1)	1.4% (2)	0.68%	1.000 (1.000)
Herbal supplements	3M	—	136	25.0% (34)	19.9% (27)	-5.15%	0.190 (0.432)	287	21.6% (62)	20.2% (58)	-1.39%	0.643 (0.939)
	12M	—	59	20.3% (12)	15.3% (9)	-5.08%	0.579 (0.890)	148	23.6% (35)	21.6% (32)	-2.03%	0.689 (0.951)

<sup>a</sup>Number of participants with valid initial (i.e. baseline, except for function tests) data and follow-up data for given measure

<sup>b</sup>Continuous measures: 95% confidence interval for paired difference between outcome and initial status; categorical measures: percentage difference between outcome and initial status.

<sup>c</sup>Continuous measures: paired t-test; binary measures: McNemar's test of paired proportions; ordinal measures (perceived benefit from GLA:D Canada, and frequency of knowledge use): paired Wilcoxon signed-rank test. Null hypothesis = no within-subject change in the given outcome. FDR = False discovery rate (p-value correction for multiple comparisons).

<sup>d</sup>Comparison: 12-month versus 3-month response

<sup>e</sup>"Don't know" responses were omitted from hypothesis tests.

<sup>f</sup>Not calculable

## Categorized outcome measures

		Hip		Knee	
Measure	Outcome category	3M	12M	3M	12M
Pain intensity					
Numeric pain rating (0-10)	No change or worsened	47.8% (66)	47.5% (28)	37.2% (108)	43.9% (65)
	Negligible improvement (0.1 - 14.9%)	8.7% (12)	6.8% (4)	3.4% (10)	2.7% (4)
	Possible improvement (15 - 29.9%)	16.7% (23)	6.8% (4)	15.2% (44)	12.2% (18)
	Clinically important improvement (≥ 30% and/or zero pain)	26.8% (37)	39.0% (23)	44.1% (128)	41.2% (61)
HOOS-12/KOOS-12 scores (0-100)					
Pain	No change or worsened	49.6% (68)	54.2% (32)	43.1% (125)	44.6% (66)
	Negligible improvement (0.1 - 4.9 pt)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
	Possible improvement (5 - 9.9 pt)	19.0% (26)	8.5% (5)	21.7% (63)	13.5% (20)
	Clinically important improvement (≥ 10 pt and/or perfect score)	31.4% (43)	37.3% (22)	35.2% (102)	41.9% (62)
Function	No change or worsened	51.8% (71)	49.2% (29)	44.5% (129)	45.3% (67)
	Negligible improvement (0.1 - 4.9 pt)	0.0% (0)	1.7% (1)	0.0% (0)	0.0% (0)
	Possible improvement (5 - 9.9 pt)	14.6% (20)	16.9% (10)	14.1% (41)	11.5% (17)
	Clinically important improvement (≥ 10 pt and/or perfect score)	33.6% (46)	32.2% (19)	41.4% (120)	43.2% (64)
Quality of life	No change or worsened	51.8% (71)	48.3% (28)	38.3% (111)	41.2% (61)
	Negligible improvement (0.1 - 4.9 pt)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

Measure	Outcome category	Hip		Knee	
		3M	12M	3M	12M
	Possible improvement (5 - 9.9 pt)	14.6% (20)	10.3% (6)	16.6% (48)	11.5% (17)
	Clinically important improvement ( $\geq 10$ pt and/or perfect score)	33.6% (46)	41.4% (24)	45.2% (131)	47.3% (70)
<b>Function tests</b>					
30-second chair stand: # of stands	No change or worsened	25.8% (25)	—	22.9% (52)	—
	Negligible improvement (0.1 to 1.9 stands)	8.2% (8)	—	4.8% (11)	—
	Clinically important improvement ( $\geq 2$ stands)	66.0% (64)	—	72.2% (164)	—
40m walking test: walking speed	No change or worsened	27.1% (16)	—	29.4% (48)	—
	Negligible improvement (0.1 to 0.19 m/s)	40.7% (24)	—	41.7% (68)	—
	Clinically important improvement ( $\geq 0.2$ m/s)	32.2% (19)	—	28.8% (47)	—
<b>Knowledge/self-efficacy</b>					
OA Patient Knowledge Questionnaire (0-30)	No change or worsened	48.8% (20)	0.0% (0)	59.3% (51)	0.0% (0)
	Negligible improvement (0.1 - 9.9%)	26.8% (11)	0.0% (0)	14.0% (12)	0.0% (0)
	Possible improvement (10 - 19.9%)	14.6% (6)	0.0% (0)	15.1% (13)	0.0% (0)
	Substantial improvement ( $\geq 20\%$ and/or perfect score)	9.8% (4)	0.0% (0)	11.6% (10)	0.0% (0)
Arthritis Self-Efficacy Scale (1-10)	No change or worsened	53.6% (74)	48.3% (28)	38.1% (110)	33.8% (50)
	Negligible improvement (0.1 - 9.9%)	9.4% (13)	8.6% (5)	10.7% (31)	12.8% (19)

		Hip		Knee	
Measure	Outcome category	3M	12M	3M	12M
	Possible improvement (10 - 19.9%)	9.4% (13)	6.9% (4)	8.7% (25)	10.1% (15)
	Substantial improvement (≥ 20% and/or perfect score)	27.5% (38)	36.2% (21)	42.6% (123)	43.2% (64)

## Joint surgery after enrollment

Measure	Time point	Response	Hip 3M: N=138 12M: N=59	Knee 3M: N=292 12M: N=153
Have you had surgery on your hip/knee since you first started the GLA:D Canada education and exercise program?	3M	No	97.8% (135)	97.9% (282)
		Yes	2.2% (3)	2.1% (6)
		Not reported	— (0)	— (4)
	12M	No	76.3% (45)	86.8% (132)
		Yes	23.7% (14)	13.2% (20)
		Not reported	— (0)	— (1)
Any joint replacement	3M	No	97.8% (135)	98.6% (284)
		Yes	2.2% (3)	1.4% (4)
		Not reported	— (0)	— (4)
	12M	No	79.7% (47)	89.3% (134)
		Yes	20.3% (12)	10.7% (16)
		Not reported	— (0)	— (3)
Any arthroscopic procedure	3M	No	100.0% (138)	99.7% (287)
		Yes	0.0% (0)	0.3% (1)
		Not reported	— (0)	— (4)
	12M	No	100.0% (59)	98.7% (147)
		Yes	0.0% (0)	1.3% (2)
		Not reported	— (0)	— (4)
Any other procedure	3M	No	100.0% (138)	99.7% (287)
		Yes	0.0% (0)	0.3% (1)
		Not reported	— (0)	— (4)
	12M	No	96.6% (57)	99.3% (148)
		Yes	3.4% (2)	0.7% (1)
		Not reported	— (0)	— (4)

## BRITISH COLUMBIA

## Baseline characteristics of GLA:D participants

Measure	Category	Hip (N=111)	Knee (N=253)
<b>Demographics</b>			
Year of enrollment	2017	9.9% (11)	13.4% (34)
	2018	42.3% (47)	27.3% (69)
	2019	47.7% (53)	59.3% (150)
Gender	Female	77.5% (86)	77.0% (194)
	Male	22.5% (25)	23.0% (58)
	Not reported	— (0)	— (1)
Age (y)	—	65.3 ± 8.6 (N = 111)	66.3 ± 8.3 (N = 253)
Age group	< 55	6.3% (7)	8.3% (21)
	55-64	36.9% (41)	31.6% (80)
	65-74	45.9% (51)	42.3% (107)
	≥ 75	10.8% (12)	17.8% (45)
Marital status	Single	8.1% (9)	8.3% (21)
	Married	63.1% (70)	66.4% (168)
	Common-law	7.2% (8)	4.7% (12)
	Living with partner	0.9% (1)	0.4% (1)
	Separated	1.8% (2)	2.8% (7)
	Divorced	10.8% (12)	7.5% (19)
	Widowed	8.1% (9)	9.9% (25)
Highest education obtained	Some or completed elementary school	0.0% (0)	0.4% (1)
	Some or completed high school	14.4% (16)	7.5% (19)
	Some or completed trade or community college program	22.5% (25)	20.2% (51)
	Some or completed university	54.1% (60)	63.2% (160)
	Other	9.0% (10)	8.7% (22)
Employment status	Working full-time	19.8% (22)	18.7% (47)
	Working part-time	11.7% (13)	8.8% (22)
	Not working, on benefits	3.6% (4)	1.6% (4)
	Retired	63.1% (70)	66.1% (166)
	Homemaker	0.0% (0)	2.4% (6)

Measure	Category	Hip (N=111)	Knee (N=253)
	Other	1.8% (2)	2.4% (6)
	Not reported	— (0)	— (2)
<b>Health factors</b>			
Smoking status	No	96.4% (107)	100.0% (253)
	Yes	3.6% (4)	0.0% (0)
Body-mass index (BMI, kg/m <sup>2</sup> )	—	27.4 ± 5.9 (N = 108)	28.6 ± 6.0 (N = 249)
BMI category	Underweight (< 18.5)	0.9% (1)	1.6% (4)
	Normal weight (18.5 - 24.9)	33.3% (36)	25.7% (64)
	Overweight (25 - 29.9)	40.7% (44)	39.8% (99)
	Obese (≥ 30)	25.0% (27)	32.9% (82)
	Not reported	— (3)	— (4)
Number of comorbid conditions (excluding osteoarthritis)	None	29.7% (33)	26.9% (68)
	1	34.2% (38)	31.2% (79)
	2	17.1% (19)	17.0% (43)
	3	9.0% (10)	13.0% (33)
	4 or more	9.9% (11)	11.9% (30)
Congestive heart failure	Yes	2.7% (3)	2.0% (5)
Heart attack (myocardial infarction)	Yes	0.9% (1)	4.4% (11)
	Not reported	— (0)	— (1)
High blood pressure	Yes	27.9% (31)	32.9% (83)
	Not reported	— (0)	— (1)
High cholesterol	Yes	15.3% (17)	19.8% (50)
Stroke or cerebrovascular accident	Yes	5.4% (6)	1.2% (3)
	Not reported	— (0)	— (1)
Asthma or chronic lung disease	Yes	13.6% (15)	9.5% (24)
	Not reported	— (1)	— (1)
Diabetes	Yes	2.7% (3)	5.9% (15)
Kidney disease	Yes	0.9% (1)	1.6% (4)
Liver disease	Yes	0.9% (1)	1.2% (3)
Anaemia or other blood disease	Yes	2.7% (3)	3.6% (9)
Stomach/intestinal ulcers	Yes	0.9% (1)	1.2% (3)
Depression	Yes	10.8% (12)	13.0% (33)
Cancer (excluding skin cancer)	Yes	3.6% (4)	5.1% (13)

Measure	Category	Hip (N=111)	Knee (N=253)
Lower back pain	Yes	28.8% (32)	22.1% (56)
<b>History of hip/knee symptoms</b>			
Duration of symptoms in affected hip/knee (years)	—	4.7 ± 5.3 (N = 111)	7.2 ± 7.6 (N = 250)
Categorized duration of symptoms (years)	Less than 1	10.8% (12)	14.0% (35)
	1 to 1.9	18.9% (21)	7.2% (18)
	2 to 4.9	40.5% (45)	25.2% (63)
	5 to 9.9	11.7% (13)	20.8% (52)
	10 or more	18.0% (20)	32.8% (82)
	Not reported	— (0)	— (3)
Previous injury to affected hip/knee	No	88.3% (98)	53.8% (136)
	Yes	11.7% (13)	46.2% (117)
Are you so troubled by your hip/knee problems that you want surgery?	No	59.6% (65)	71.1% (177)
	Yes	40.4% (44)	28.9% (72)
	Not reported	— (2)	— (4)
<b>Previous surgery on affected joint</b>			
Have you had surgery on your hip/knee?	No	88.2% (97)	77.7% (195)
	Yes	11.8% (13)	22.3% (56)
	Not reported	— (1)	— (2)
Specify surgery type (all that apply):	Joint replacement	10.0% (11)	2.8% (7)
	Arthroscopic procedure	1.8% (2)	19.1% (48)
	Other surgery	2.7% (3)	4.0% (10)
	Not reported	— (1)	— (2)
<b>Physical activity</b>			
Are you afraid that your joints will be damaged from physical activity and exercise?	No	76.6% (85)	64.4% (163)
	Yes	23.4% (26)	35.6% (90)
In a typical week, how many days have you been physically active at least 30 minutes per day?	None	6.3% (7)	4.4% (11)
	1 to 3	27.9% (31)	25.4% (64)
	4 to 6	33.3% (37)	47.6% (120)
	7	32.4% (36)	22.6% (57)
	Not reported	— (0)	— (1)



Measure	Category	Hip (N=111)	Knee (N=253)
<b>Medications</b>			
Have you taken any medications including herbal or dietary supplements for your hip/knee in the last 3 months?	No	33.3% (37)	22.9% (58)
	Yes	66.7% (74)	77.1% (195)
Specify medications (select all that apply):	Acetaminophen (e.g. Tylenol plain or extra strength)	49.5% (55)	49.4% (125)
	Non-steroidal anti-inflammatory drugs/NSAID (e.g. ibuprofen, Aleve, aspirin)	40.5% (45)	45.8% (116)
	Topical NSAID cream	23.4% (26)	43.9% (111)
	Glucosamine	18.9% (21)	24.5% (62)
	Hyaluronic acid injection into your joint	2.7% (3)	9.9% (25)
	Corticosteroid (cortisone) injection into your joint	11.7% (13)	7.5% (19)
	Morphine or other opioids (e.g. Tylenol No. 3)	2.7% (3)	5.5% (14)
	Tramadol	3.6% (4)	4.3% (11)
	Codeine	1.8% (2)	2.8% (7)
	Tricyclic antidepressants (for neuropathic pain)	2.7% (3)	0.8% (2)
	Anticonvulsants (e.g. Gabapentin)	0.9% (1)	3.2% (8)
	Methotrexate	0.0% (0)	0.4% (1)
	Herbal supplements	24.3% (27)	27.3% (69)
<b>Patient-reported scales</b>			
Numeric pain rating: hip/knee pain in the past month (0-10)	—	4.8 ± 2.3 (N = 111)	4.7 ± 2.1 (N = 253)
HOOS-12/KOOS-12 subscale (0=extreme symptoms, 100=no symptoms)	Pain	53.5 ± 18.4 (N = 111)	54.1 ± 14.8 (N = 253)
	Function	61.2 ± 19.6 (N = 111)	59.8 ± 18.9 (N = 253)
	Quality of life	41.7 ± 19.5 (N = 111)	40.0 ± 17.0 (N = 253)
EQ-5D utility score	—	0.7 ± 0.2 (N = 111)	0.7 ± 0.1 (N = 249)
Arthritis Self-Efficacy Scale (1=lowest self-efficacy, 10=highest)	—	6.2 ± 2.1 (N = 111)	6.2 ± 1.7 (N = 252)

**3-month survey: GLA:D Canada participation and satisfaction with program**

Measure	Category	Hip (N=50)	Knee (N=130)
How many education sessions did you attend? (0-3)	0	6.0% (3)	1.6% (2)
	1	16.0% (8)	20.3% (26)
	2	74.0% (37)	71.1% (91)
	3	4.0% (2)	7.0% (9)
	Not reported	— (0)	— (2)
How many exercise sessions did you attend? (0-12, categorized)	0-5	2.0% (1)	3.1% (4)
	6-10	18.4% (9)	25.6% (33)
	11-12	79.6% (39)	71.3% (92)
	Not reported	— (1)	— (1)
How much have you benefited from the GLA:D program?	1 - Not at all beneficial	4.0% (2)	0.8% (1)
	2	2.0% (1)	2.3% (3)
	3 - Neutral	10.0% (5)	6.2% (8)
	4	32.0% (16)	30.0% (39)
	5 - Very beneficial	52.0% (26)	60.8% (79)
How often do you use what you have learned from the GLA:D program in your daily life?	Never	6.0% (3)	1.5% (2)
	Every month	4.0% (2)	2.3% (3)
	Every week	26.0% (13)	36.2% (47)
	Every day	46.0% (23)	41.5% (54)
	Several times a day	12.0% (6)	13.8% (18)
	Don't know	6.0% (3)	4.6% (6)
How satisfied are you with the outcome of the GLA:D program?	1 - Not at all satisfied	2.0% (1)	2.3% (3)
	2	2.0% (1)	0.8% (1)
	3 - Neutral	20.4% (10)	4.7% (6)
	4	24.5% (12)	33.3% (43)
	5 - Very satisfied	51.0% (25)	58.9% (76)
	Not reported	— (1)	— (1)
Based on your experience, how much would you be willing to pay to take part in the GLA:D program?	\$100 or less	22.0% (11)	13.2% (17)
	\$101 to \$150	12.0% (6)	7.0% (9)
	\$151 to \$200	6.0% (3)	17.1% (22)
	\$201 to \$250	20.0% (10)	15.5% (20)
	\$251 to \$300	16.0% (8)	19.4% (25)
	\$301 or more	24.0% (12)	27.9% (36)
	Not reported	— (0)	— (1)

## Participant outcomes

## Changes from initial status to follow-up

			Hip					Knee				
Measure	Time	Category	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Pain intensity												
Numeric pain rating	3M	—	50	5.1 ± 2.4	3.9 ± 2.5	-1.9, -0.6	<0.001 (0.004)	130	4.7 ± 1.9	3.5 ± 2.1	-1.6, -0.8	<0.001 (<0.001)
	12M	—	34	4.7 ± 2.1	3.4 ± 2.5	-2.2, -0.6	0.002 (0.009)	56	4.7 ± 2.0	3.5 ± 1.9	-1.8, -0.6	<0.001 (0.002)
HOOS-12/KOOS-12 scores												
Pain	3M	—	50	52.4 ± 18.1	60.8 ± 21.2	4.0, 12.7	<0.001 (0.002)	130	54.6 ± 14.1	62.1 ± 15.7	5.3, 9.8	<0.001 (<0.001)
	12M	—	34	52.2 ± 16.6	66.5 ± 22.5	6.7, 21.9	<0.001 (0.003)	56	54.5 ± 14.2	63.4 ± 16.8	5.2, 12.6	<0.001 (<0.001)
Function	3M	—	50	58.9 ± 20.0	65.0 ± 23.6	0.81, 11.36	0.025 (0.108)	130	59.2 ± 18.7	65.7 ± 18.7	3.8, 9.2	<0.001 (<0.001)
	12M	—	34	62.1 ± 18.4	69.7 ± 21.1	1.4, 13.7	0.018 (0.090)	56	60.2 ± 18.1	70.0 ± 19.7	5.7, 14.0	<0.001 (<0.001)
Quality of life	3M	—	50	36.9 ± 19.7	47.5 ± 24.5	6.0, 15.3	<0.001 (<0.001)	130	39.4 ± 16.5	47.9 ± 18.2	6.1, 10.8	<0.001 (<0.001)
	12M	—	34	39.5 ± 19.2	54.7 ± 22.9	7.7, 22.5	<0.001 (0.002)	56	40.2 ± 15.3	48.7 ± 19.1	4.9, 12.2	<0.001 (<0.001)
Function tests												
30-second chair stand: # of stands	Last session	—	41	12.5 ± 3.8	15.7 ± 5.9	1.8, 4.5	<0.001 (<0.001)	101	12.4 ± 5.8	15.7 ± 6.5	2.2, 4.2	<0.001 (<0.001)
40-m walk test: speed (m/s)	Last session	—	27	1.4 ± 0.4	1.4 ± 0.4	-0.03, 0.15	0.157 (0.373)	70	1.4 ± 0.3	1.5 ± 0.4	0.08, 0.23	<0.001 (0.001)

			Hip					Knee				
Measure	Time	Category	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Other outcomes												
In a typical week, how many days have you been physically active at least 30 minutes per day?	3M	—	50	4.3 ± 2.4	4.4 ± 2.1	-0.58, 0.66	0.898 (1.000)	129	4.5 ± 1.9	4.7 ± 1.8	-0.06, 0.44	0.128 (0.317)
	12M	—	34	4.9 ± 2.1	4.4 ± 2.1	-1.1, 0.1	0.078 (0.206)	56	4.5 ± 1.8	4.6 ± 1.9	-0.32, 0.60	0.537 (0.827)
Body-mass index (kg/m²)	3M	—	48	26.3 ± 6.0	26.6 ± 5.8	-0.43, 0.90	0.476 (0.770)	128	28.6 ± 6.0	29.1 ± 7.2	-0.24, 1.08	0.208 (0.446)
	12M	—	34	26.3 ± 5.5	26.2 ± 5.0	-0.62, 0.43	0.714 (0.968)	55	28.2 ± 6.8	28.2 ± 6.9	-0.26, 0.23	0.916 (1.000)
BMI category: overweight or obese (≥ 25 kg/m²)	3M	—	48	56.2% (27)	56.2% (27)	0.00%	1.000 (1.000)	128	72.7% (93)	71.9% (92)	-0.78%	1.000 (1.000)
	12M	—	34	55.9% (19)	55.9% (19)	0.00%	1.000 (1.000)	55	63.6% (35)	61.8% (34)	-1.82%	1.000 (1.000)
BMI category: obese (≥ 30 kg/m²)	3M	—	48	18.8% (9)	25.0% (12)	6.25%	0.248 (0.496)	128	35.2% (45)	33.6% (43)	-1.56%	0.683 (0.938)
	12M	—	34	17.6% (6)	23.5% (8)	5.88%	0.480 (0.770)	55	29.1% (16)	25.5% (14)	-3.64%	0.480 (0.770)
EQ-5D-5L health utility	3M	—	50	0.68 ± 0.20	0.71 ± 0.20	-0.01, 0.08	0.085 (0.221)	125	0.74 ± 0.14	0.79 ± 0.12	0.03, 0.07	<0.001 (<0.001)
	12M	—	34	0.70 ± 0.20	0.76 ± 0.17	-0.00, 0.13	0.054 (0.178)	52	0.76 ± 0.11	0.78 ± 0.17	-0.01, 0.06	0.167 (0.390)
OA Patient Knowledge score	3M	—	19	22.3 ± 5.2	23.7 ± 2.4	-0.69, 3.54	0.175 (0.399)	41	23.1 ± 4.0	23.0 ± 4.3	-0.97, 0.87	0.915 (1.000)
Arthritis Self-Efficacy Scale	3M	—	50	5.9 ± 2.1	6.5 ± 2.4	0.02, 1.18	0.042 (0.150)	129	6.3 ± 1.7	6.9 ± 1.6	0.30, 0.90	<0.001 (0.001)
	12M	—	34	5.9 ± 2.1	6.6 ± 2.4	0.08, 1.35	0.028 (0.114)	56	6.5 ± 1.8	7.0 ± 2.0	-0.04, 1.06	0.067 (0.196)

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Are you so troubled by your hip/knee problems that you want surgery?	3M	—	49	49.0% (24)	51.0% (25)	2.04%	1.000 (1.000)	128	25.8% (33)	27.3% (35)	1.56%	0.845 (1.000)
	12M	—	34	41.2% (14)	23.5% (8)	-17.65%	0.149 (0.361)	56	25.0% (14)	26.8% (15)	1.79%	1.000 (1.000)
Are you afraid that your joints will be damaged from physical activity and exercise?	3M	—	50	26.0% (13)	16.0% (8)	-10.00%	0.267 (0.525)	129	34.1% (44)	14.0% (18)	-20.16%	<0.001 (<0.001)
	12M	—	34	26.5% (9)	17.6% (6)	-8.82%	0.371 (0.682)	56	28.6% (16)	14.3% (8)	-14.29%	0.043 (0.150)
How much have you benefited from the GLA:D program? <sup>d</sup>	12M	1 - Not at all beneficial	28	0.0% (0)	0.0% (0)	0.00%	0.024 (0.107)	50	0.0% (0)	0.0% (0)	0.00%	0.064 (0.196)
		2	28	0.0% (0)	7.1% (2)	7.14%		50	0.0% (0)	0.0% (0)	0.00%	
		3 - Neutral	28	10.7% (3)	17.9% (5)	7.14%		50	6.0% (3)	12.0% (6)	6.00%	
		4	28	32.1% (9)	25.0% (7)	-7.14%		50	38.0% (19)	42.0% (21)	4.00%	
		5 - Very beneficial	28	57.1% (16)	50.0% (14)	-7.14%		50	56.0% (28)	46.0% (23)	-10.00%	
How often do you use what you have learned from the GLA:D program in your daily life? <sup>d</sup>	12M	Never	28	3.6% (1)	10.7% (3)	7.14%	<0.001 (0.003)	50	2.0% (1)	0.0% (0)	-2.00%	0.055 (0.178)
		Every month	28	3.6% (1)	10.7% (3)	7.14%		50	0.0% (0)	4.0% (2)	4.00%	
		Every week	28	21.4% (6)	50.0% (14)	28.57%		50	32.0% (16)	38.0% (19)	6.00%	
		Every day	28	50.0% (14)	17.9% (5)	-32.14%		50	42.0% (21)	42.0% (21)	0.00%	
		Several times a day	28	17.9% (5)	7.1% (2)	-10.71%		50	22.0% (11)	10.0% (5)	-12.00%	

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
		Don't know <sup>e</sup>	28	3.6% (1)	3.6% (1)	0.00%		50	2.0% (1)	6.0% (3)	4.00%	
Employment status: currently working (full- or part-time)	3M	—	50	36.0% (18)	20.0% (10)	-16.00%	0.013 (0.069)	128	21.1% (27)	19.5% (25)	-1.56%	0.683 (0.938)
	12M	—	34	26.5% (9)	17.6% (6)	-8.82%	0.248 (0.496)	56	23.2% (13)	25.0% (14)	1.79%	1.000 (1.000)
Employment status: Not working and on benefits	3M	—	50	8.0% (4)	10.0% (5)	2.00%	1.000 (1.000)	128	1.6% (2)	2.3% (3)	0.78%	1.000 (1.000)
	12M	—	34	0.0% (0)	2.9% (1)	2.94%	<b>NC<sup>f</sup></b>	56	0.0% (0)	0.0% (0)	0.00%	<b>NC</b>
<b>Medications</b>												
Have you taken any medications for your hip/knee in the last 3 months?	3M	—	49	75.5% (37)	75.5% (37)	0.00%	1.000 (1.000)	129	75.2% (97)	67.4% (87)	-7.75%	0.100 (0.254)
	12M	—	34	76.5% (26)	55.9% (19)	-20.59%	0.070 (0.196)	56	78.6% (44)	64.3% (36)	-14.29%	0.186 (0.415)
Any injection(s) reported (hyaluronic acid, corticosteroid)	3M	—	49	20.4% (10)	8.2% (4)	-12.24%	0.041 (0.150)	129	12.4% (16)	7.8% (10)	-4.65%	0.211 (0.446)
	12M	—	34	14.7% (5)	8.8% (3)	-5.88%	0.683 (0.938)	56	10.7% (6)	7.1% (4)	-3.57%	0.724 (0.971)
Any opioid use reported (morphine, tramadol, codeine)	3M	—	49	8.2% (4)	6.1% (3)	-2.04%	1.000 (1.000)	129	10.9% (14)	7.8% (10)	-3.10%	0.343 (0.651)
	12M	—	34	2.9% (1)	8.8% (3)	5.88%	0.617 (0.914)	56	7.1% (4)	7.1% (4)	0.00%	1.000 (1.000)
Acetaminophen	3M	—	49	55.1% (27)	51.0% (25)	-4.08%	0.814 (1.000)	129	48.8% (63)	45.0% (58)	-3.88%	0.499 (0.789)
	12M	—	34	50.0% (17)	32.4% (11)	-17.65%	0.211 (0.446)	56	46.4% (26)	41.1% (23)	-5.36%	0.663 (0.938)

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
NSAID	3M	—	49	51.0% (25)	51.0% (25)	0.00%	1.000 (1.000)	129	45.0% (58)	35.7% (46)	-9.30%	0.038 (0.148)
	12M	—	34	52.9% (18)	41.2% (14)	-11.76%	0.386 (0.699)	56	51.8% (29)	35.7% (20)	-16.07%	0.066 (0.196)
Topical NSAID cream	3M	—	49	26.5% (13)	28.6% (14)	2.04%	1.000 (1.000)	129	45.0% (58)	34.1% (44)	-10.85%	0.026 (0.109)
	12M	—	34	26.5% (9)	8.8% (3)	-17.65%	0.077 (0.206)	56	51.8% (29)	30.4% (17)	-21.43%	0.019 (0.090)
Glucosamine	3M	—	49	26.5% (13)	18.4% (9)	-8.16%	0.221 (0.457)	129	27.9% (36)	22.5% (29)	-5.43%	0.070 (0.196)
	12M	—	34	23.5% (8)	14.7% (5)	-8.82%	0.450 (0.770)	56	32.1% (18)	19.6% (11)	-12.50%	0.070 (0.196)
Hyaluronic acid injection	3M	—	49	6.1% (3)	2.0% (1)	-4.08%	0.480 (0.770)	129	10.1% (13)	7.0% (9)	-3.10%	0.453 (0.770)
	12M	—	34	5.9% (2)	2.9% (1)	-2.94%	1.000 (1.000)	56	7.1% (4)	3.6% (2)	-3.57%	0.617 (0.914)
Corticosteroid injection	3M	—	49	18.4% (9)	6.1% (3)	-12.24%	0.041 (0.150)	129	5.4% (7)	3.1% (4)	-2.33%	0.371 (0.682)
	12M	—	34	11.8% (4)	5.9% (2)	-5.88%	0.617 (0.914)	56	7.1% (4)	5.4% (3)	-1.79%	1.000 (1.000)
Morphine or other opioids	3M	—	49	2.0% (1)	2.0% (1)	0.00%	1.000 (1.000)	129	5.4% (7)	3.1% (4)	-2.33%	0.450 (0.770)
	12M	—	34	0.0% (0)	5.9% (2)	5.88%	NC <sup>f</sup>	56	3.6% (2)	3.6% (2)	0.00%	1.000 (1.000)
Tramadol	3M	—	49	6.1% (3)	4.1% (2)	-2.04%	1.000 (1.000)	129	3.9% (5)	5.4% (7)	1.55%	0.683 (0.938)
	12M	—	34	2.9% (1)	2.9% (1)	0.00%	1.000 (1.000)	56	3.6% (2)	3.6% (2)	0.00%	1.000 (1.000)

Measure	Time	Category	Hip					Knee				
			N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>	N <sup>a</sup>	Initial status	Outcome status	Change from initial status <sup>b</sup>	P (FDR-adjusted) <sup>c</sup>
Codeine	3M	—	49	0.0% (0)	2.0% (1)	2.04%	NC <sup>f</sup>	129	3.1% (4)	1.6% (2)	-1.55%	0.480 (0.770)
	12M	—	34	0.0% (0)	2.9% (1)	2.94%	NC <sup>f</sup>	56	0.0% (0)	3.6% (2)	3.57%	NC <sup>f</sup>
Tricyclic antidepressants (for neuropathic pain)	3M	—	49	4.1% (2)	2.0% (1)	-2.04%	1.000 (1.000)	129	0.8% (1)	0.0% (0)	-0.78%	NC <sup>f</sup>
	12M	—	34	2.9% (1)	0.0% (0)	-2.94%	NC <sup>f</sup>	56	0.0% (0)	0.0% (0)	0.00%	NC <sup>f</sup>
Anticonvulsants	3M	—	49	2.0% (1)	0.0% (0)	-2.04%	NC <sup>f</sup>	129	3.1% (4)	3.1% (4)	0.00%	1.000 (1.000)
	12M	—	34	0.0% (0)	0.0% (0)	0.00%	NC <sup>f</sup>	56	0.0% (0)	3.6% (2)	3.57%	NC <sup>f</sup>
Methotrexate	3M	—	49	0.0% (0)	0.0% (0)	0.00%	NC <sup>f</sup>	129	0.0% (0)	0.8% (1)	0.78%	NC <sup>f</sup>
	12M	—	34	0.0% (0)	2.9% (1)	2.94%	NC <sup>f</sup>	56	0.0% (0)	0.0% (0)	0.00%	NC <sup>f</sup>
Herbal supplements	3M	—	49	26.5% (13)	20.4% (10)	-6.12%	0.505 (0.789)	129	24.0% (31)	26.4% (34)	2.33%	0.663 (0.938)
	12M	—	34	26.5% (9)	14.7% (5)	-11.76%	0.289 (0.558)	56	25.0% (14)	28.6% (16)	3.57%	0.773 (1.000)

<sup>a</sup>Number of participants with valid initial (i.e. baseline, except for function tests) data and follow-up data for given measure

<sup>b</sup>Continuous measures: 95% confidence interval for paired difference between outcome and initial status; categorical measures: percentage difference between outcome and initial status.

<sup>c</sup>Continuous measures: paired t-test; binary measures: McNemar's test of paired proportions; ordinal measures (perceived benefit from GLA:D Canada, and frequency of knowledge use): paired Wilcoxon signed-rank test. Null hypothesis = no within-subject change in the given outcome. FDR = False discovery rate (p-value correction for multiple comparisons).

<sup>d</sup>Comparison: 12-month versus 3-month response

<sup>e</sup>"Don't know" responses were omitted from hypothesis tests.

<sup>f</sup>Not calculable



## Categorized outcome measures

		Hip		Knee	
Measure	Outcome category	3M	12M	3M	12M
<b>Pain intensity</b>					
Numeric pain rating (0-10)	No change or worsened	36.0% (18)	35.3% (12)	38.5% (50)	42.9% (24)
	Negligible improvement (0.1 - 14.9%)	6.0% (3)	5.9% (2)	3.1% (4)	0.0% (0)
	Possible improvement (15 - 29.9%)	14.0% (7)	5.9% (2)	13.1% (17)	10.7% (6)
	Clinically important improvement (≥ 30% and/or zero pain)	44.0% (22)	52.9% (18)	45.4% (59)	46.4% (26)
<b>HOOS-12/KOOS-12 scores (0-100)</b>					
Pain	No change or worsened	42.0% (21)	32.4% (11)	40.0% (52)	39.3% (22)
	Negligible improvement (0.1 - 4.9 pt)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
	Possible improvement (5 - 9.9 pt)	18.0% (9)	17.6% (6)	22.3% (29)	10.7% (6)
	Clinically important improvement (≥ 10 pt and/or perfect score)	40.0% (20)	50.0% (17)	37.7% (49)	50.0% (28)
Function	No change or worsened	50.0% (25)	38.2% (13)	42.3% (55)	26.8% (15)
	Negligible improvement (0.1 - 4.9 pt)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
	Possible improvement (5 - 9.9 pt)	18.0% (9)	8.8% (3)	12.3% (16)	17.9% (10)
	Clinically important improvement (≥ 10 pt and/or perfect score)	32.0% (16)	52.9% (18)	45.4% (59)	55.4% (31)

Measure	Outcome category	Hip		Knee	
		3M	12M	3M	12M
Quality of life	No change or worsened	40.0% (20)	29.4% (10)	35.4% (46)	42.9% (24)
	Negligible improvement (0.1 - 4.9 pt)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
	Possible improvement (5 - 9.9 pt)	10.0% (5)	11.8% (4)	16.2% (21)	7.1% (4)
	Clinically important improvement (≥ 10 pt and/or perfect score)	50.0% (25)	58.8% (20)	48.5% (63)	50.0% (28)
<b>Function tests</b>					
30-second chair stand: # of stands	No change or worsened	24.4% (10)	—	20.8% (21)	—
	Negligible improvement (0.1 to 1.9 stands)	14.6% (6)	—	11.9% (12)	—
	Clinically important improvement (≥ 2 stands)	61.0% (25)	—	67.3% (68)	—
40m walking test: walking speed	No change or worsened	29.6% (8)	—	27.1% (19)	—
	Negligible improvement (0.1 to 0.19 m/s)	44.4% (12)	—	27.1% (19)	—
	Clinically important improvement (≥ 0.2 m/s)	25.9% (7)	—	45.7% (32)	—
<b>Knowledge/self-efficacy</b>					
OA Patient Knowledge Questionnaire (0-30)	No change or worsened	52.6% (10)	0.0% (0)	63.4% (26)	0.0% (0)
	Negligible improvement (0.1 - 9.9%)	15.8% (3)	0.0% (0)	22.0% (9)	0.0% (0)
	Possible improvement (10 - 19.9%)	0.0% (0)	0.0% (0)	4.9% (2)	0.0% (0)
	Substantial improvement (≥ 20% and/or perfect score)	31.6% (6)	0.0% (0)	9.8% (4)	0.0% (0)

Measure	Outcome category	Hip		Knee	
		3M	12M	3M	12M
Arthritis Self-Efficacy Scale (1-10)	No change or worsened	46.0% (23)	35.3% (12)	31.0% (40)	33.9% (19)
	Negligible improvement (0.1 - 9.9%)	14.0% (7)	11.8% (4)	14.0% (18)	12.5% (7)
	Possible improvement (10 - 19.9%)	8.0% (4)	8.8% (3)	10.9% (14)	10.7% (6)
	Substantial improvement (≥ 20% and/or perfect score)	32.0% (16)	44.1% (15)	44.2% (57)	42.9% (24)

## Joint surgery after enrollment

Measure	Time point	Response	Hip 3M: N=50 12M: N=36	Knee 3M: N=130 12M: N=57
Have you had surgery on your hip/knee since you first started the GLA:D Canada education and exercise program?	3M	No	92.0% (46)	99.2% (129)
		Yes	8.0% (4)	0.8% (1)
	12M	No	66.7% (24)	84.2% (48)
		Yes	33.3% (12)	15.8% (9)
Any joint replacement	3M	No	92.0% (46)	99.2% (129)
		Yes	8.0% (4)	0.8% (1)
	12M	No	66.7% (24)	87.7% (50)
		Yes	33.3% (12)	12.3% (7)
Any arthroscopic procedure	3M	No	100.0% (50)	100.0% (130)
	12M	No	100.0% (34)	96.4% (54)
		Yes	0.0% (0)	3.6% (2)
		Not reported	— (2)	— (1)
Any other procedure	3M	No	100.0% (50)	100.0% (130)
	12M	No	100.0% (34)	100.0% (56)
		Not reported	— (2)	— (1)