Participant flow

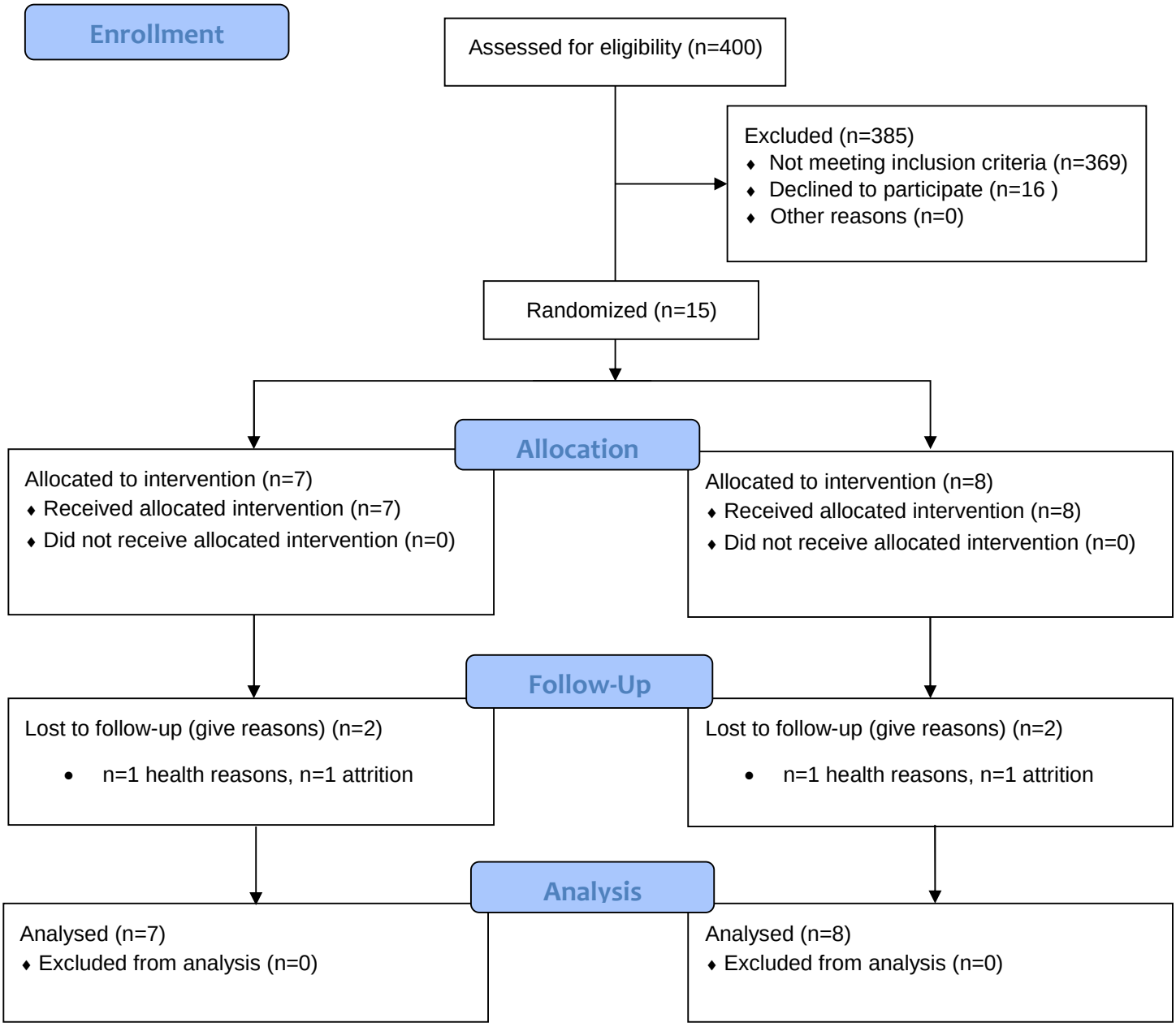

Figure 1. CONSORT flow diagram for this study

Baseline characteristics

Table 1. Mean (SD) participant demographics and details of prosthetic componentry.

	Gender	Age (years)	Height (cm)	Body mass (kg)	Time since amputation (years)	Level of amputation	Reason for amputation	Prosthetic knee	Prosthetic ankle
Exercise group									
1	F	50	166	101	3	Transfemoral	Malignancy	Polycentric, Steeper	SACH, College Park
2	M	78	176	91	1	Transtibial	Vascular	---	SACH, Streifeneder
3	F	68	163	66	49	Transtibial	Trauma	---	Multi-axial, Blatchford
4	M	65	170	93	7	Transfemoral	Vascular	Polycentric, Ottobock	SACH, Streifeneder
5	M	63	182	106	8	Transfemoral	Infection	Microprocessor, Ottobock	Dynamic, Ottobock
6	F	52	159	81	3	Transfemoral	Malignancy	Monocentric, Steeper	SACH, College Park
7	M	42	185	109	0.8	Transfemoral	Vascular	Polycentric, Steeper	Energy-returning, Freedom Innovations
Mean (SD):		60 (12)	172 (10)	92 (15)	10 (17)				
Control group									
1	M	61	179	82	1	Transfemoral	Vascular	Monocentric, Steeper	SACH, College Park
2	M	64	178	81	48	Transfemoral	Trauma	Polycentric, Steeper	SACH, College Park
3	M	60	177	113	4	Transfemoral	Infection	Monocentric, Steeper	SACH, College Park
4	F	79	146	54	30	Transtibial	Trauma	---	SACH, College Park
5	M	34	191	124	10	Transtibial	Trauma	---	Dynamic, Trulife
6	M	91	167	92	12	Transtibial	Vascular	---	Multi-axial, Blatchford
7	M	64	176	129	0.6	Transfemoral	Osteomyelitis	Polycentric, Blatchford	SACH, College Park
8	M	66	179	84	47	Transfemoral	Trauma	Polycentric, Össur	Dynamic, College Park
Mean (SD):		65 (16)	174 (13)	95 (25)	19 (20)				

Outcome measures

Table 2. Mean (SD) falls, temporal-spatial and kinematic results. Peak joint angles are shown in degrees (˚). 95% confidence intervals (CI) are shown. Exercise, n=7; control, n=8.

	Exercise					Control				
	Baseline	**12-months**	**CI**	***P***	***d***	**Baseline**	**12-months**	**CI**	***P***	***d***
Falls (n) †	12.1 (14.8)	0.1 (0.4)	3.4, 20.6	0.01*	1.58	2.8 (2.3)	4.0 (4.8)	-9.3, 6.8	0.742	0.35
	PRE	**POST**	**CI**	***P***	***d***	**PRE**	**POST**	**CI**	***P***	***d***
Gait Speed (m·s⁻¹) †	0.77 (0.25)	0.98 (0.21)	-0.31, -0.12	<0.001*	0.91	0.84 (0.31)	0.82 (0.28)	-0.65, 0.11	0.586	0.07
Double Support (%)	31.4 (7.0)	27.0 (3.7)	-0.3, 9.0	0.066	0.82	30.9 (9.8)	30.1 (6.5)	-3.6, 5.2	0.699	0.10
Step length (m)										
Intact	0.52 (0.13)	0.52 (0.14)	-0.11, 0.12	0.938	0.00	0.52 (0.17)	0.53 (0.14)	-0.11, 0.10	0.935	0.06
Affected	0.55 (0.10)	0.62 (0.14)	-0.19, 0.05	0.211	0.58	0.57 (0.16)	0.60 (0.16)	-0.14, 0.08	0.537	0.19
Cadence (steps/min)										
Intact	97 (20)	109 (8)	-24, -1	0.030	0.96	99 (10)	102 (8)	-13, 8	0.566	0.33
Affected †	78 (16)	88 (16)	-21, 1	0.068	0.63	87 (16)	82 (12)	-5, 15	0.302	0.36
Stance (%)										
Intact	71.3 (5.7)	68.6 (4.8)	-0.3, 5.7	0.070	0.51	66.1 (6.9)	67.3 (5.2)	-4.0, 1.6	0.358	0.20
Affected	59.7 (2.0)	56.4 (3.2)	-7.8, 14.5	0.527	1.27	60.3 (6.4)	53.8 (13.4)	-3.9, 16.9	0.201	0.66
Peak hip adduction (pre-swing)										
Intact	-0.66 (4.90)	-0.34 (5.68)	-6.49, 5.84	0.911	0.06	0.99 (7.55)	5.33 (3.82)	-10.10, 1.44	0.129	0.76
Affected	-7.19 (7.13)	-6.15 (4.70)	-7.41, 5.32	0.729	0.18	-5.16 (1.59)	-3.72 (4.60)	-7.39, 4.51	0.609	0.47
Peak hip abduction (swing)										
Intact	9.69 (3.67)	9.23 (6.92)	-5.48, 6.40	0.869	0.09	11.85 (7.35)	14.69 (4.27)	-8.40, 2.71	0.289	0.49
Affected	4.69 (7.42)	5.16 (6.69)	-7.37, 6.39	0.884	0.07	3.54 (3.49)	6.66 (6.73)	-9.53, 3.31	0.314	0.61
Peak hip extension (terminal stance)										
Intact	-9.2 (9.1)	-22.2 (4.5)	4.5, 21.6	0.006*	1.91	-12.8 (10.0)	-18.6 (6.7)	-2.1, 13.8	0.138	0.7
Affected	-9.5 (14.0)	-23.5 (3.1)	5.8, 22.2	0.003*	1.64	-12.9 (7.9)	-19.6 (6.5)	-1.0, 14.3	0.085	0.92
Peak hip flexion (swing)										
Intact	27.2 (11.6)	22.1 (5.2)	-3.3, 13.5	0.214	0.61	25.2 (5.0)	24.5 (6.3)	-7.2, 8.6	0.85	0.12
Affected	28.3 (12.3)	19.0 (6.6)	0.9, 17.7	0.033*	0.98	25.2 (10.3)	19.2 (8.3)	-1.9, 13.9	0.123	0.65
Peak knee flexion (loading response)										
Intact	4.0 (7.3)	7.5 (9.2)	-8.8, 1.8	0.177	0.42	13.1 (8.5)	13.2 (3.2)	-5.0, 4.8	0.962	0.02
Affected	0.8 (8.7)	1.7 (10.0)	-7.3, 5.5	0.760	0.10	6.1 (9.5)	3.1 (12.3)	-3.0, 9.0	0.301	0.27
Peak knee flexion (swing)										
Intact	56.7 (6.5)	63.7 (4.0)	-19.6, 5.7	0.254	1.33	51.9 (19.9)	63.8 (3.9)	-23.8, -0.1	0.049*	1.00
Affected	40.3 (20.6)	49.4 (14.8)	-19.9, 1.8	0.094	0.51	49.4 (23.3)	44.9 (24.3)	-5.6, 14.6	0.355	0.19
Peak dorsiflexion (terminal stance)										
Intact	17.0 (3.5)	17.8 (2.7)	-3.8, 2.2	0.579	0.26	15.6 (6.0)	17.2 (4.0)	-4.5, 1.2	0.237	0.32
Affected	14.5 (6.4)	11.0 (4.2)	-0.6, 7.5	0.092	0.66	10.8 (3.8)	11.6 (4.9)	-4.6, 3.0	0.651	0.18
Peak plantarflexion (pre-swing)										
Intact	-12.2 (5.2)	-14.3 (2.8)	-3.3, 7.5	0.414	0.53	-8.2 (9.7)	-11.3 (7.9)	-1.9, 8.1	0.206	0.35
Affected	-9.9 (7.0)	-2.8 (3.5)	-12.2, -2.0	0.010*	1.35	-2.7 (4.1)	-2.4 (5.0)	-5.0, 4.6	0.920	0.07

† denotes a statistically significant (P<0.05) group*time interaction * denotes a statistically significant within-group change

Adverse events

There were no adverse events associated with this trial