TABLE E-1 Baseline Characteristics of Children Participating in the Trial by Group

Characteristic*	Single-Event Multilevel Surgery Group (N = 11)	Control Group (N = 8)
GMFCS level II *(no.)*	7	7
GMFCS level III *(no.)*	4	1
Male *(no.)*	6	6
Female *(no.)*	5	2
Age† *(yr/mo)*	9/6 (1/4)	9/11 (1/7)
Height† *(cm)*	132 (7)	134 (11)
Weight† *(kg)*	31 (6)	31 (7)

*GMFCS = Gross Motor Function Classification System. †The values are presented as the mean and standard deviation.

TABLE E-2 Surgical Indications and Procedures Performed in Single-Event Multilevel Surgery Group (N = 11 Children and 22 Lower Limbs)

	Indication		
Procedure	Clinical*	Kinematics†	Number
Soft-tissue procedure			
Psoas over the brim	Hip FFD >10° (Thomas test)	Pelvis “double bump” pattern	11
Adductor lengthening	Hip abduction <40°		10
Medial hamstring lengthening	Knee FFD 0°-10°	Increased knee flexion at initial contact, terminal swing	8
Medial hamstring lengthening plus semitendinosus transfer to adductor tubercle	Knee FFD >10°	Increased knee flexion at initial contact, terminal swing	4
Rectus femoris transfer to semitendinosus	Positive Duncan-Ely (prone rectus) test	Decreased and/or late peak knee flexion in swing	8
Gastrocnemius lengthening (Strayer procedure)	Dorsiflexion <0° under anesthesia (fixed contracture)	Plantar flexion throughout stance phase	13
Soleus lengthening	Dorsiflexion <0° after gastrocnemius lengthening (intraoperatively)	Plantar flexion throughout stance phase	1
Intramuscular lengthening of tibialis posterior	Varus heel, adducted forefoot		2
Lengthening of peroneus brevis	Concomitant os calcis lengthening		3
Osseous procedure			
Femoral derotation osteotomy	FNA >25°	Hip rotation >10° internal throughout stance phase	9
Femoral varus derotation osteotomy	FNA >25° and MP >10°, <25°	Hip rotation >10° internal throughout stance phase	8
Femoral varus derotation plus extension	FNA >25° and MP >10°, <25°; hip FFD >15°	Hip rotation >10° internal throughout stance phase	2
Supramalleolar osteotomy of tibia (internal rotation)	External tibial torsion >15°	Foot progression angle external throughout stance phase	3
Os calcis lengthening	Pes valgus	Foot progression angle external throughout stance	3
Total			85

*FFD = fixed flexion deformity, FNA = femoral neck anteversion, and MP = migration percentage. †In the sagittal plane for the soft-tissue procedures and in the transverse plane for the osseous procedures. To be considered an indication for surgery, the kinematic parameters had to be more than two standard deviations outside the reference range.

TABLE E-3 Profile of Surgical Procedures Performed and Gait Measures at Baseline and Twelve Months for Each Subject in the Single-Event Multilevel Surgery Group

	Surgical Procedures*													Gait Measures†			
	Soft Tissue									Osseous			Total No.	GPS		GGI	
Subject	POTB	AddL	MHL	MHL+STT	RFT	GasL	SolL	TPL	PBL	FDRO	SMO	OscalL		Baseline	12 Months	Baseline	12 Months
2	B	B		B	B	B	U	U	U	B		U	16	20.1	13.4	714	317
3		U	B			U				U			5	10.2	8.9	108	116
5	B	B	B							B			8	22.0	13.5	477	253
8								U		B	U		4	14.1	7.9	115	42
9	B					B				B	B		8	10.3	8.9	152	103
11		B			B					B			6	13.1	11.8	282	171
13	B	U			B	B			B	B		B	13	15.7	9.3	444	215
15	U	B				B				B			7	13.7	7.5	223	123
16	B		B		B					B			8	11.8	9.1	404	117
17			B			B							4	11.9	8.4	288	73
18				B		B				B			6	15.5	12.9	677	188

*POTB = psoas over the brim, AddL = hip adductor lengthening, MHL = medial hamstring lengthening, MHL+STT = medial hamstring lengthening plus semitendinosus transfer to the adductor tubercle, RFT = rectus femoris transfer to the semitendinosus, GasL = gastrocnemius lengthening (Strayer procedure), SolL = soleal fascial lengthening, TPL = intramuscular lengthening of the tibialis posterior, PBL = peroneus brevis lengthening, FDRO = femoral derotation osteotomy (proximal) with or without varus derotation and/or extension of the femur, SMO = supramalleolar osteotomy of the tibia (internal rotation), OscalL = os calcis lengthening, B = bilateral, and U = unilateral. †GPS = Gait Profile Score, and GGI = Gillette Gait Index.