

Supplemental Digital Content 1

Table. Stride characteristics

	1.1 m/s		1.4 m/s		1.7 m/s	
Uphill, 10%	Y	O	Y	O	Y	O
Hip ROM, °	47.7±4.1	50.9±6.1	52.4±5.2	55.0±5.9	56.0±4.8	56.2±6.0
Knee ROM, °	56.5±4.6	57.3±4.1	58.3±4.2	58.8±4.4	59.6±4.0	59.8±5.2
Ankle ROM, °	31.1±4.1	29.7±5.0	33.2±3.5	30.8±4.5	33.2±4.3	31.3±5.1
Step length, m	0.64±0.05	0.59±0.06	0.73±0.04	0.68±0.05	0.80±0.04	0.74±0.05
Cadance, steps/min	104±8	112±11	116±8	123±10	129±7	139±9
Stride time, s	1.16±0.08	1.08±0.09	1.04±0.06	0.98±0.07	0.94±0.05	0.87±0.08
Stance phase, %	63.0±1.6	64.2±1.9	61.4±1.0	62.9±2.6	60.5±1.1	61.5±1.9
Swing phase, %	37.0±0.9	36.1±1.3	38.6±1.0	37.5±1.5	39.6±1.1	38.8±1.7
Level, 0%	Y	O	Y	O	Y	O
Hip ROM, °	37.6±3.3	39.1±4.8	41.4±4.2	43.9±4.9	45.2±4.1	47.6±5.6
Knee ROM, °	65.6±4.2	61.4±3.9	65.6±3.4	62.5±3.8	64.0±3.1	61.9±4.4
Ankle ROM, °	27.1±3.8	25.5±5.3	29.8±3.2	28.0±4.9	29.4±3.0	27.6±4.3
Step length, m	0.62±0.04	0.59±0.05	0.71±0.04	0.69±0.04	0.80±0.04	0.75±0.06
Cadance, steps/min	108±7	113±10	118±7	123±8	128±6	136±12
Stride time, s	1.12±0.06	1.07±0.09	1.02±0.06	0.98±0.07	0.94±0.04	0.90±0.12

Stance phase, %	62.9±1.0	63.0±1.7	61.1±0.8	62.0±2.4	60.0±1.7	59.8±3.1
Swing phase, %	37.1±1.0	37.0±1.7	38.9±0.8	38.4±1.6	40.2±0.9	40.3±3.1
Downhill, -10%	Y	O	Y	O	Y	O
Hip ROM, °	29.6±3.8	32.5±5.6	33.8±3.9	37.2±5.7	37.7±4.7	39.7±5.9
Knee ROM, °	68.1±5.0	65.9±5.4	69.8±4.3	67.6±5.0	68.9±3.9	66.8±5.3
Ankle ROM, °	24.6±2.6	25.0±3.4	25.2±2.8	24.4±3.7	24.1±3.1	23.7±3.5
Step length, m	0.58±0.04	0.55±0.05	0.67±0.04	0.66±0.05	0.76±0.05	0.73±0.07
Cadance, steps/min	115±8	120±10	125±8	128±10	135±9	142±13
Stride time, s	1.06±0.07	1.01±0.09	0.97±0.06	0.95±0.10	0.88±0.07	0.85±0.09
Stance phase, %	61.9±1.1	62.8±3.0	60.9±0.9	61.4±2.4	60.4±2.1	59.5±1.7
Swing phase, %	38.5±0.9	37.7±1.8	39.0±0.9	39.4±2.6	40.6±1.2	41.1±1.9

Values are mean ± SD. Y = young adults, O = older adults, ROM = range of motion.