

## Three Dimensional Gait Analysis of Normal Adults with Electrogoniometer Domotion

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**Background:** The aim of this study is to present the basic reference data of kinematic gait analysis of normal Korean adults with 3 dimensional electrogoniometer, Domotion .

**Method:** The basic kinematic gait parameters of hip, knee and ankle joints on the sagittal plane were obtained from 10 healthy adults with 5 repetition for each. Three-dimensional gait analysis was performed with Domotion electrogoniometer in 10 meters long flat floor. Each data collected was processed with IBM PC equipped with gait analysis program.

**Results:** Mean maximal hip flexion was  $23.05^{\circ} \pm 4.62^{\circ}$  and mean maximal hip extension was  $6.46^{\circ} \pm 1.30^{\circ}$ . Knee flexion was observed with two peak values. The first peak knee flexion was  $6.50^{\circ} \pm 2.07^{\circ}$  at 20.4% of gait cycle and the second peak flexion was  $50.34^{\circ} \pm 2.23^{\circ}$  at 75.8% of gait cycle. Mean maximum ankle dorsiflexion was  $5.57^{\circ} \pm 1.19^{\circ}$  at 44% of gait cycle and mean maximum ankle plantar flexion was  $15.51^{\circ} \pm 1.73^{\circ}$  at 68.5% of gait cycle.

**Conclusion:** We concluded three dimensional gait analysis with electrogoniometer Domotion offers a valid and reliable kinematic data and the application of this tools for clinical gait evaluation will be helpful in management of pathological gait.

**Key Words:** Gait analysis, Electrogoniometer, Three dimensional

가  
2,5-6  
가  
(kinematic analysis),  
(kinetic analysis), (dynamic  
electromyography) (energy  
expenditure measurement)

1-4

가

가

6,8,9-10

3

가

가

가

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Figure 1. Joint unit



Figure 2. A Man in DOMOTION

가  
가

1.  
2002 9 3 2002 11 10 2  
3 , 가 , 가  
26 34 10  
3  
2.  
5  
PC  
가  
가 1 kg  
3  
Domotion 3  
Motion analysys 10  
IBM-PC 3  
가 6  
가 3  
가  
가  
가  
(Fig. 1).

(Fig. 2).  
가  
가  
10 meter  
5  
가  
가 1 kg  
(Fig. 3) 1  
(Fig. 4).

1.  
10 6 4  
27.9 26 34  
168.3 cm, 79.8 cm (Table 1).  
2. 가  
10 5

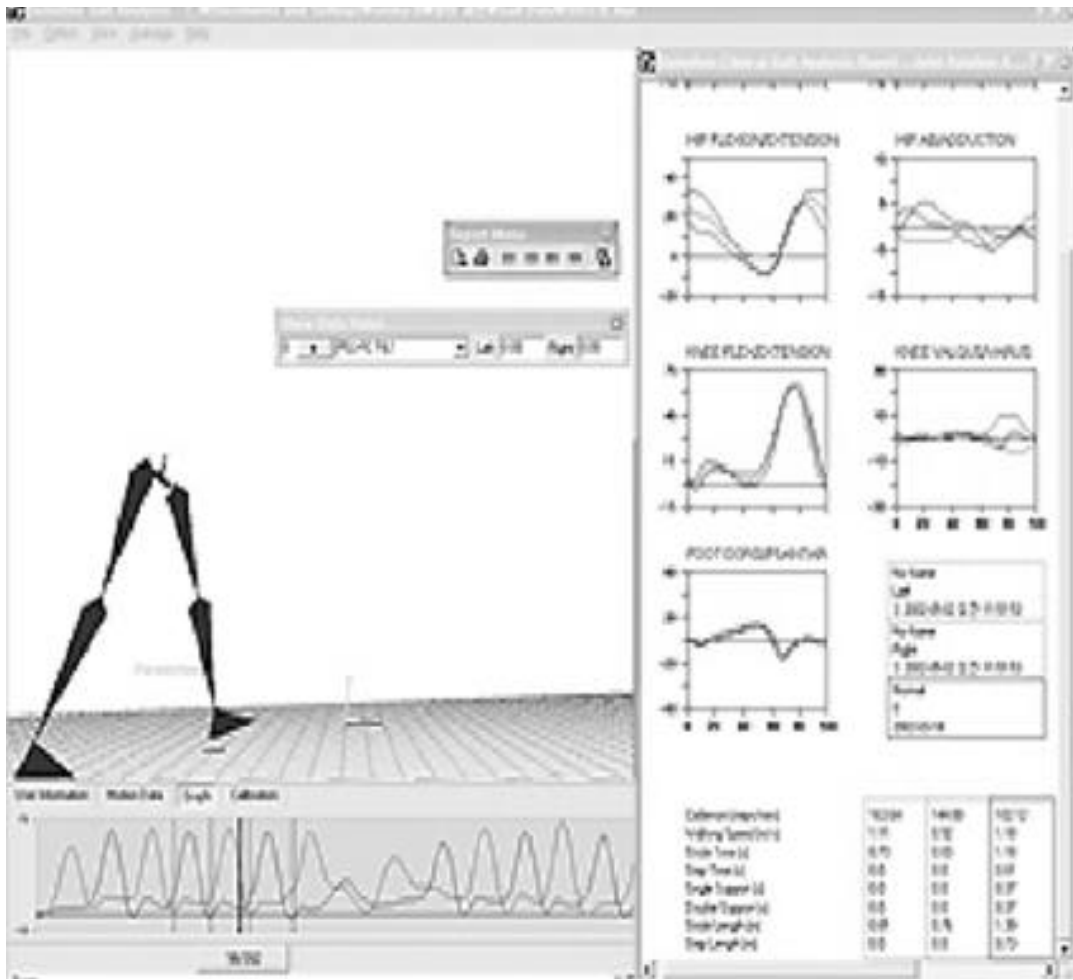


Figure 3. Domotion Motion Analysis Program

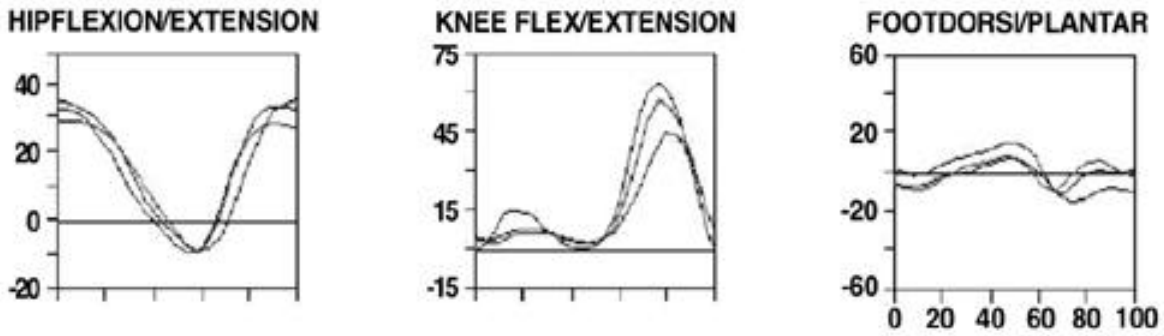


Figure 4. Gait Analysis Graph

가	6가	가	23.05±4.62°	6.46±
가	가	1.30°	6.50±2.07가	20.4%
가	5	oneway ANOVA	50.34±2.23 가	5.57°
가	5%	75.8%	44%	68.5%
3.		±1.19°	15.51±1.73°	
10			(Table 2).	



29.5 8.8 ,  
57 4.2 , 18.1  
14.4

39.74 4.10 ,  
56.97 2.47 ,  
15.93 13.67 .

가

가

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