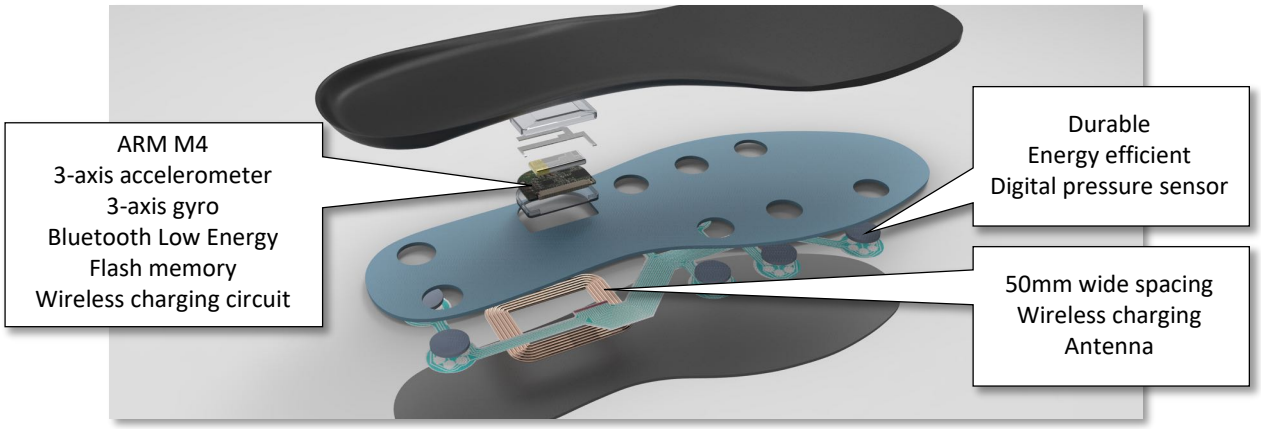
Walking, the 6th Vital Sign !!

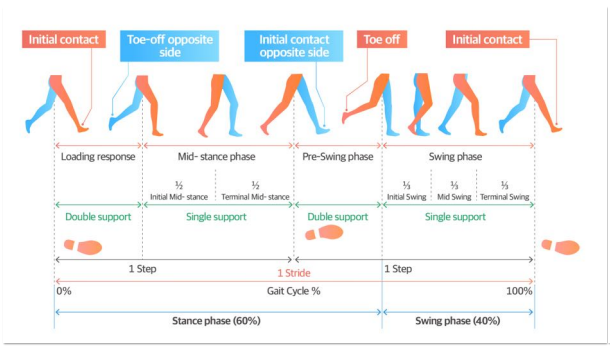
Imagine being able to diagnose as well as predict possible diseases simply based on your walk!!

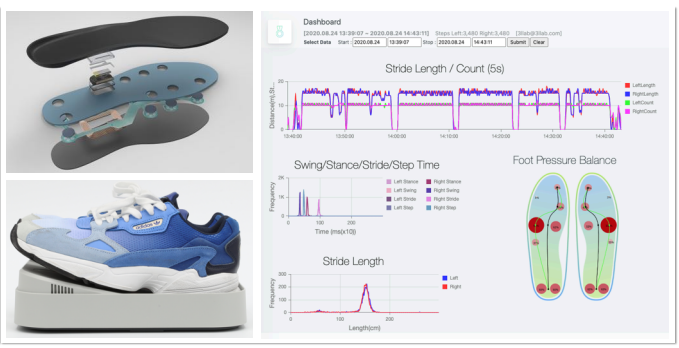
footLogger.

Personal Mobile Gait Analysis System based on IoMT Insole

Unlike other gait analysis systems which only work indoors, the footLogger. mobile gait analysis system can analyze your everyday walk 24/7 with comparable accuracy.







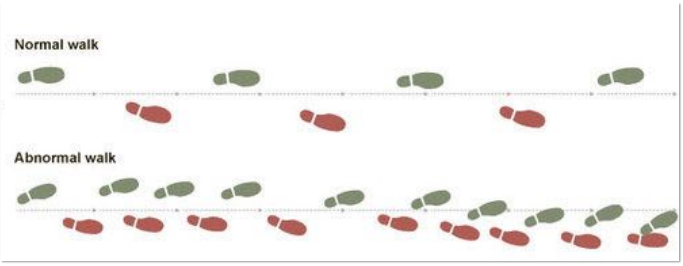
Walking, the 6th Vital Sign !!

footLogger. Usage

Diagnosing & predicting disease

Dementia walking

- Slow walking
- Narrow step length
- Step length/time variability
- Being biased walking



Pathologies	footLogger Diagnostics (Evaluation)	footLogger Therapeutics (Rehabilitation)	Dscription
Multiple Sclerosis	◎	◎	
Stroke	●	◎	
Elderly falls	●	◎	
Parkinson's disease	●	◎	
Sarcopenia	◎	◎	
Obesity	◎	◎	
COPD	◎	◎	
Orthopedic surgery	◎	◎	Joint replacement
Diabetic foot	◎	●	
Phantom Limb pain	◎	●	
Dementia	●	◎	
Pedestrian calibration	◎	◎	

● Clinical trials in process ◎ Clinical trials to come ● Inapplicable

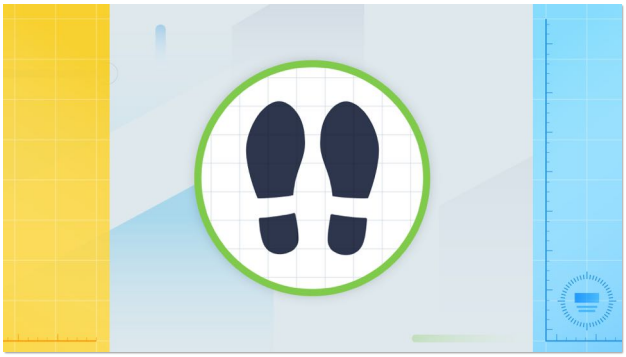
Walking, the 6th Vital Sign !!

footLogger. Usage

Rehabilitation & Recovery monitoring

footLogger. can monitor the rehabilitation process following a surgery or illness like hemiplegic disabled and total joint replacement

Pedestrian calibration



Walking, the 6th Vital Sign !!

footLogger. Usage
Digital therapeutics

There are many studies showing that walking exercise is effective in treating various diseases. But the reason why it is not actively and effectively used for therapeutic (preventive) purposes to actual patients is a tool to track execution even if a personalized walking exercise is prescribed.

Because there is no tool to track walking exercise execution !!

< Diseases for which walking exercise helps >

Chronical disease	Degenerative disease	Musculoskeletal disorders	Psychical disorder	Circulatory diseases
• Obesity • Diabetes • Hypertension • Hyperlipidemia • Fatty liver • Immunity	• Dementia • Parkinson • Degenerative arthritis • Sarcopenia • Stroke • Frailty • Falls	• Back pain • Knee pain • Shoulder pain • osteoporosis • Arthritis	• Depression • Stress • Insomnia • Mental anxiety	• Cardiac disorder • Cardiovascular disease • Hypertension • Blood circulation disease
Cerebrovascular disease	**Digestive trouble**	**Respiratory disease**	**Rehabilitation & recovery**	**Correction**
• Stroke	• Constipation • Digestant	• Enhancing of lung function	• Surgery • Illness	• Posture correction • Pedestrian calibration

footLogger. can be used as digital therapeutics.

- Prescribing customized walking exercise
- Tracking walking exercise execution
- Evaluating walking exercise effect

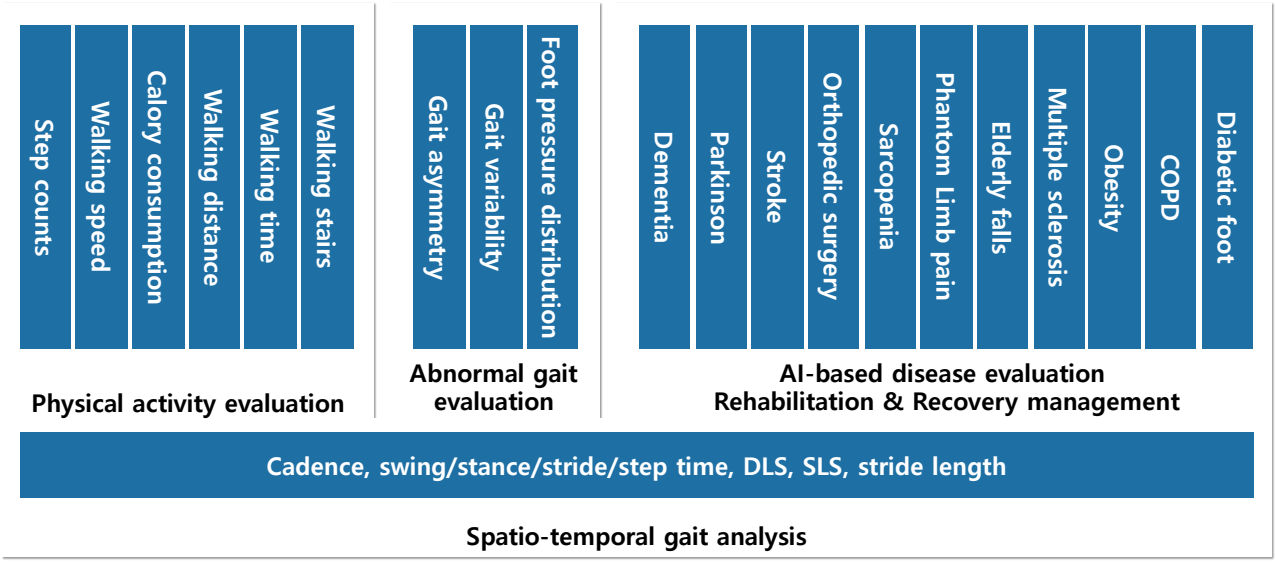
Customized walking exercise prescribing → **Walking exercise execution tracking** → **Walking exercise effect evaluation** → **Customized walking exercise re-prescribing**

Walking, the 6th Vital Sign !!

fGait.

Cloud Server for footLogger gait data analysis

- Spatio-temporal gait cycle analysis
- Physical activity evaluation
- Gait abnormality evaluation
- AI-based, Rule-based disease evaluation
- Rehabilitation & Recovery management



		Unit	Left				Right				L/R AD		Left & Right			
			Average	SD	%CV	%GC	Average	SD	%CV	%GC	Diff	%	Average	SD	%CV	%GC
Count	Strides		3,064				3,011				53.00	1.7%				
	Cadence	/Min	122.80													
Temporal	Stride Time	sec	0.97	0.016	1.6%	100.0%	0.97	0.015	1.6%	100.0%	0.00	0.0%	0.97	0.015	1.6%	100.0%
	Stance Time	sec	0.59	0.013	2.2%	61.3%	0.60	0.013	2.2%	62.3%	-0.01	-1.5%	0.60	0.014	2.3%	61.8%
	Swing Time	sec	0.37	0.010	2.7%	38.7%	0.37	0.009	2.5%	37.7%	0.01	2.5%	0.37	0.011	2.9%	38.2%
	Step Time	sec	0.50	0.011	2.2%	51.2%	0.49	0.010	2.0%	50.9%	0.00	0.7%	0.49	0.011	2.1%	51.0%
	SLST	sec	0.37	0.010	2.7%	37.7%	0.37	0.010	2.7%	38.7%	-0.01	-2.5%	0.37	0.011	2.9%	38.2%
	DLST	sec	0.23	0.014	6.1%	23.6%	0.23	0.014	5.9%	23.6%	0.00	0.0%	0.23	0.014	6.0%	23.6%
	Initial DLST	sec	0.12	0.010	8.2%	12.1%	0.11	0.009	7.8%	11.5%	0.01	5.2%	0.11	0.010	8.4%	11.8%
	Terminal DLST	sec	0.11	0.009	8.0%	11.5%	0.12	0.009	8.1%	11.5%	-0.01	-5.2%	0.11	0.010	8.5%	11.8%
	Loading Response	sec	0.00	0.000	0%	0.0%	0.00	0.000	0%	0.0%	0.00	0.0%	0.00	0.000	0%	0.0%
	Heel Pitch	sec	0.00	0.000	0%	0.0%	0.00	0.000	0%	0.0%	0.00	0.0%	0.00	0.000	0%	0.0%
	Mid Stance	sec	0.00	0.000	0%	0.0%	0.00	0.000	0%	0.0%	0.00	0.0%	0.00	0.000	0%	0.0%
Spatial	Stride Length	cm	152.66	6.299	4.1%		151.63	5.558	3.7%		1.03	0.7%	152.66	6.299	4.1%	
	Velocity	m/s	1.58	0.075	4.7%		1.57	0.068	4.3%		0.01	0.7%	1.58	0.075	4.7%	

Walking, the 6th Vital Sign !!

footLogger. Features

1. Mobile Gait Analysis System based on IoMT Insole

Walkway type gait analysis system or 3D motion analysis system is not possible to analyze the gait cycle of everyday walking

2. Durable & energy efficient digital pressure sensor

By independently developing a digital pressure sensor with strong durability and low power consumption, it is possible to collect gait 24 hours a day, 365 days a year.

3. Convenient & sanitary wide spacing wireless charging

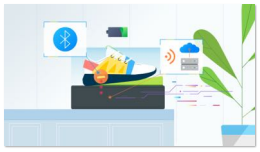
In the case of battery replacement or wired charging, there is a sense of hygienic rejection due to contact, but by developing a 50mm wide spacing wireless charging technology, wireless charging can be performed without touching the insole while putting it on the shoe.

4. Versatile stride length measurement

- By measuring the individual stride length, the walking speed can be calculated, so that the results of walking research based on walking speed can be used on a daily basis.
- Objective evaluation of correct walking with stride length
- Walking with a wide stride improves diseases such as bad walking, back pain and joint pain.

5. Automatic gait data collecting & uploading

When you put on the shoes, gait collection starts automatically, When placed on the wireless charger, it is automatically charged, and data is uploaded automatically without a smartphone.



IoMT Insole-based personal mobile gait analysis system requirements for non-face-to-face gait analysis		foot Logger	Korea P Co.	Korea S Co.	Korea J Co.	France F Co.
For consumer	Can be used by the public?	O	O	O	X	△
Everyday walking 24 hours 365 days	Comfort, weight, waterproof, internal storage, pr essure sensor durability, low power consumption	O	X	△	X	O
Medical device level Gait analysis	Measurement index (KATS, Papers)	O	X	X	O	O
	Measurement accuracy (Validation status)	O	X	X	X	O
Easy to use	Wireless charging (Sanitary charging)	O	X	△	X	△
Convenient to use	Smartphone App required	No	Yes	Yes	-	Yes
	Automatic collection of walking data	O	X	X	X	X
	Automatic uploading of collected walking data	O	X	X	X	X