

App Guide

Walking One Leg Flexion (Hip Knee Ankle Extension)

SageMotion
Wearable Biofeedback System



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Components



Hub



Nodes (8x)



Battery



Node Straps: *Medium (8x), Short (4x), Long (2x)*



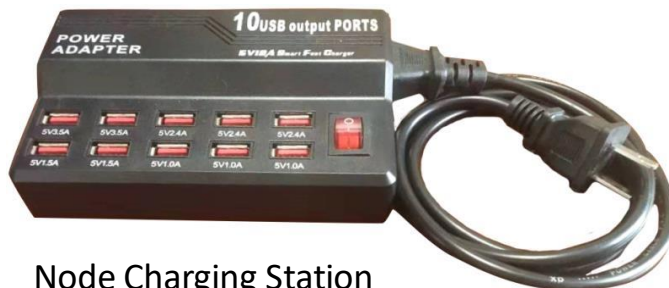
Cable A (10x)

-Connect Hub to Battery
-Charge Nodes & Battery



Cable B (*optional use*)

-Connect Hub to Computer



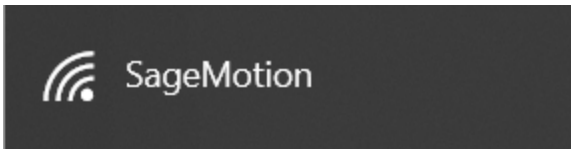
Node Charging Station

Wirelessly Connect to Computer or Cellphone

1) Connect Cable A to Battery and to Hub



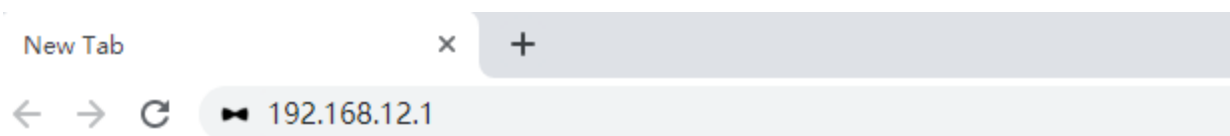
2) On Computer/Cellphone, Connect to Wi-Fi: "SageMotion"



Note 1: Need to wait for up to 1 minute for "SageMotion" to appear in Wi-Fi list. If it doesn't appear, try turning the Wi-Fi off and then on again on the computer/cellphone.

Note 2: Hub is connected after clicking "Connect" even if in Windows it shows "Connecting" or "No internet, open".

3) On Computer/Cellphone, in Chrome Address Bar, Go To <http://192.168.12.1>



[Note] If Computer Doesn't Have Wi-Fi: plug in Cable B to the Hub and to the ethernet port of your computer, then in chrome address bar, go to **<http://192.168.137.1>**

Walking One Leg Flexion App

The purpose of the Walking 1 App is to record, analyze, and provide feedback for Hip, Knee and Ankle Extension angle while subjects perform walking or other daily activities.

1) Turn on 6 Nodes



Slide switch toward middle to turn node on



Green light will blink after the node is on and running

2) Select “Walking 1” App



3) Click “Search”



Walking One Leg Flexion App (*cont.*)

4) Configure 4 Sensor Nodes and 2 Feedback Nodes as Shown Below:

Node List ?



Type	Position	MAC	
sensor	foot	88:6B:0F:4F:7D:ED	+
sensor	shank	18:04:ED:E7:94:C5	+
sensor	thigh	18:04:ED:EB:25:10	+
sensor	pelvis	18:04:ED:EB:21:C0	+
feedback	feedback_min	18:04:ED:E7:83:15	+
feedback	feedback_max	88:6B:0F:4F:A2:8F	+

Number of Nodes Required = 6

5) Click “Connect”

Connect Nodes

Node List ?

Type	Position	MAC	
sensor	foot	88:6B:0F:4F:7D:ED	+
sensor	shank	18:04:ED:E7:94:C5	+
...

6) “Ready to collect data” Will Appear after Node Connection is Complete



Walking One Leg Flexion

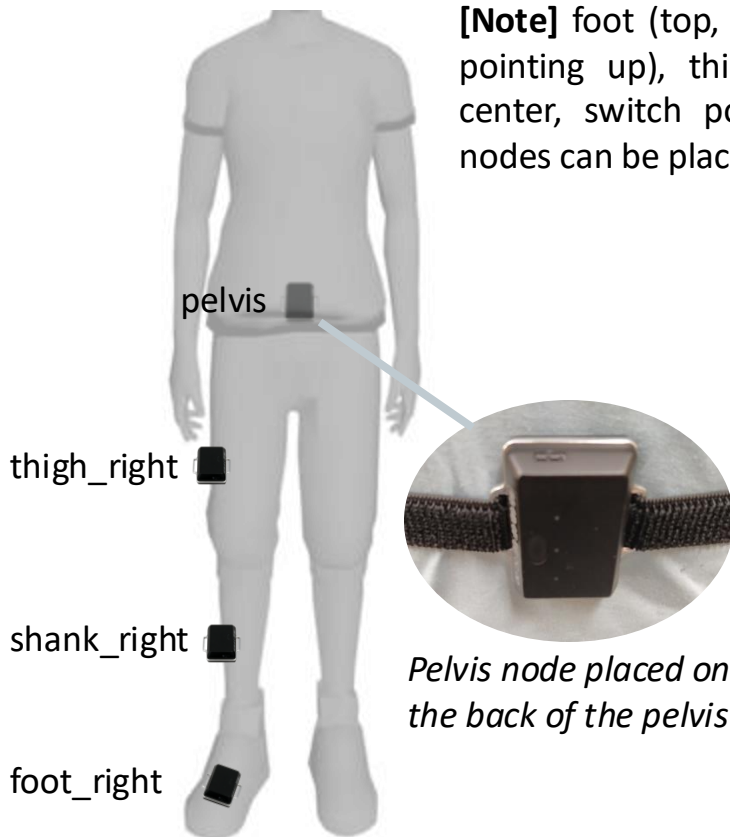
Start

Stop

✓ Ready to collect data

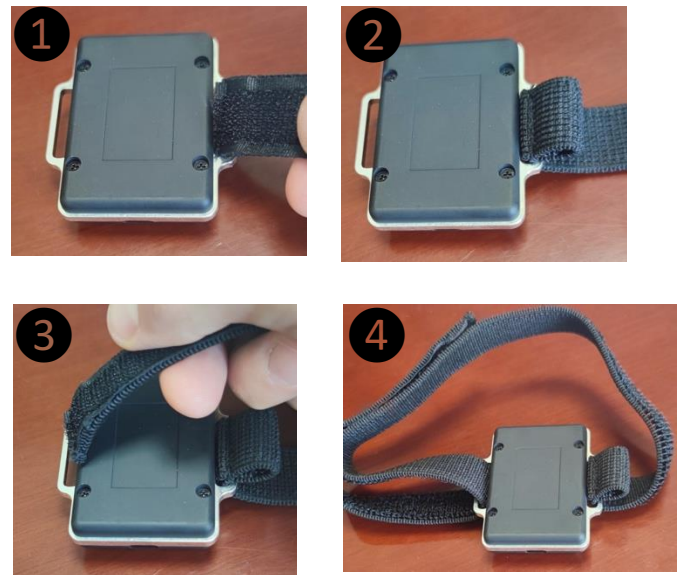
Walking One Leg Flexion App (cont.)

7) Thread Straps through Nodes and Attach at Locations Shown Below:



[Note] foot (top, switch pointing forward), shank (lateral, switch pointing up), thigh (lateral, switch pointing up), pelvis (back center, switch pointing up). feedback_min and feedback_max nodes can be placed at any location

How to Thread Straps



8) Click “Blink” for each Node to Confirm Correct Locations (red LED for given node blinks 3 times on click)

Node List ?						
Type	Position	MAC				
sensor	foot	88:6B:0F:4F:7D:ED		Blink	Vibrate	+
sensor	shank	18:04:ED:E7:94:C5		Blink	Vibrate	+
sensor	thigh	18:04:ED:EB:25:10		Blink	Vibrate	+
sensor	pelvis	18:04:ED:EB:21:C0		Blink	Vibrate	+
feedback	feedback_min	18:04:ED:E7:83:15		Blink	Vibrate	+
feedback	feedback_max	88:6B:0F:4F:A2:8F		Blink	Vibrate	+

Walking One Leg Flexion App (*cont.*)

9) In App Configuration, Enter Settings (Example Below)

App Configuration	
Trial Name	Walking_1
Sensor Placement	
Which Leg?	Left Leg
Feedback Setting	
Enable Feedback	yes
Which Feedback Measurement?	Hip Flex
Min Threshold Angle	-20
Max Threshold Angle	20
Delay Time before Feedback (sec)	0.03
Save Options	
Save Mode	xlsx

[Note] “Delay Time before Feedback” is the amount of delay between the time when the land task is complete and when vibration starts. This can be configured as needed.

Walking One Leg Flexion App (*cont.*)

10) Click “Start” to Start Running the App



11) After the Trial is Finished, Click “Stop”



12) After Clicking “Stop”, a File from that Trial will Appear under Download Data. Click the File (e.g. Walking_1) to Download it to the Computer or Phone.

Data List

<input type="checkbox"/> Name	Date▲	Duration	App	Type	Size	Rename	Del
<input type="checkbox"/> Walking_1	2024-12-13-10-23-16	0:00:17	Walking One Leg Flexion	.xlsx	4.7 MB		

Walking One Leg Flexion App (*cont.*)

Description of Data in Downloaded File

Calculated Fields

- time (sec): time since trial start
- step_count: steps of walking
- Gait_Phase: gait phase of either left foot or the right foot as selected in the app configuration.
 - 0 is “Early stance”;
 - 1 is “Middle stance” ;
 - 2 is “Late stance”;
 - 3 is “Swing”
- feedback_max: feedback status for feedback_max node.
 - 0 is “feedback off”
 - 1 is - “feedback on”
- feedback_min: feedback status for feedback_min node.
 - 0 is “feedback off”
 - 1 is “feedback on”

Sensor Raw Data Values

Please Note: Each of the columns listed below will be repeated for each sensor

- SensorIndex: index of raw sensor data
- AccelX/Y/Z (m/s²): raw acceleration data
- GyroX/Y/Z (deg/s): raw gyroscope data
- MagX/Y/Z (μT): raw magnetometer data
- Quat1/2/3/4: quaternion data (Scaler first order)
- Sampletime: timestamp of the sensor value
- Package: package number of the sensor value