App Guide
Knee Adduction Moment (KAM)

SageMotion
Wearable Biofeedback System

Table of Contents

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)*
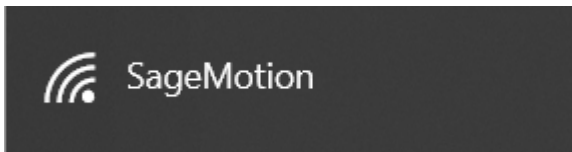*-Connect Hub to Computer*

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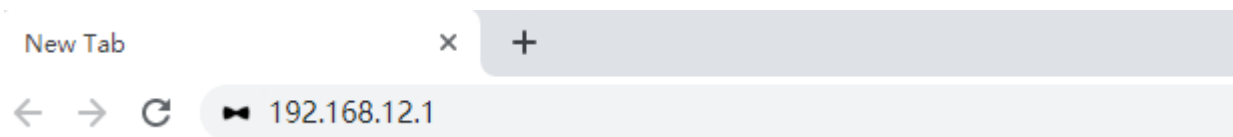
[Note] If Computer Doesn't Have Wi-Fi: *plug in Cable B to the Hub and to the ethernet port of your computer, then in chrome address bar, go to* ***http://192.168.137.1***

KAM App

The purpose of the Knee Adduction Moment App is to estimate the adduction moment of the right knee.
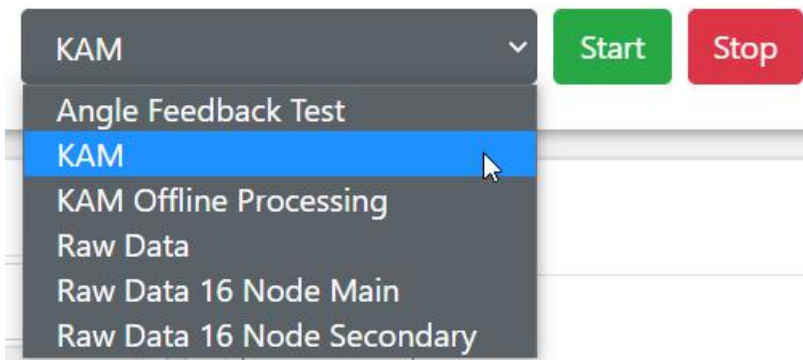
1) Turn on 7 Nodes

Slide switch toward middle to turn node on

Green light will blink after the node is on and running

2) Select "KAM" App

3) Click "Search"

KAM App *(cont.)*

4) Configure 7 Sensor Nodes as Shown Below:

Node List   [Search]   [Connect]

Type	Position	MAC	
sensor ▾	L_FOOT ▾	88:6B:0F:E1:D8:51	..ıll
sensor ▾	L_THIGH ▾	68:0A:E2:53:23:0E	..ıll
sensor ▾	R_FOOT ▾	CC:CC:CC:45:3F:AA	..ıll
sensor ▾	R_SHANK ▾	68:0A:E2:53:23:DC	..ıll
sensor ▾	R_THIGH ▾	68:0A:E2:53:23:FB	..ıll
sensor ▾	L_SHANK ▾	68:0A:E2:53:24:08	..ıll
sensor ▾	WAIST ▾	68:0A:E2:53:23:F0	..ıll

5) Click "Connect"

Node List   [Search]   [Connect]

6) "Ready to collect data" Will Appear after Node Connection is Complete
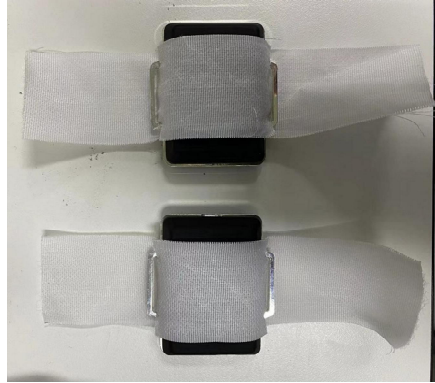
KAM ▾   [Start]   [Stop]   ✔ *Ready to collect data*
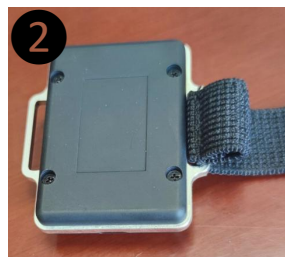
KAM App *(cont.)*

7) Attach Foot Nodes by Adhering the Velcro Rough Side to the Shoes and the Velcro Soft Side to the Nodes and Then Attaching the Velcro Together

For both nodes, the on/off switch points to the body

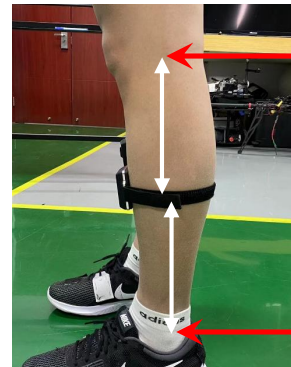**8) Thread Straps through the Remaining 5 Nodes**

How to Thread Straps

KAM App *(cont.)*

9) Attach Nodes to Anterior Shanks – Midway between Femur Lateral Epicondyle and Fibula Apex of Lateral Malleolus

For both nodes, the on/off switch points upwards

Femur Lateral Epicondyle

Fibula Apex of Lateral Malleolus

10) Attach Nodes to Anterior Thighs – Midway between Femur Greater Trochanter and Femur Lateral Epicondyle

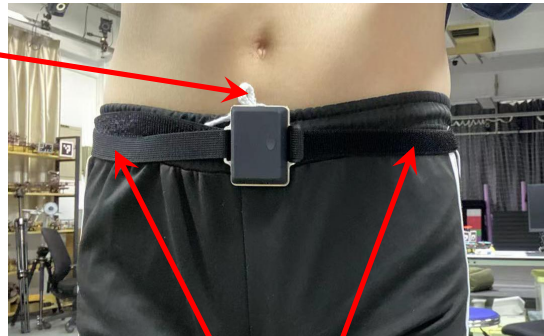For both nodes, the on/off switch points upwards

Femur Greater Trochanter

Femur Lateral Epicondyle

KAM App *(cont.)*

11) Attach Nodes to Anterior Pelvis – Midway between Left and Right Anterior Superior Iliac Spine

The on/off switch points upwards

Anterior Superior Iliac Spine

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

Type	Position	MAC		
sensor	L_FOOT	88:6B:0F:E1:D8:51	.ıll	Blink
sensor	R_FOOT	CC:CC:CC:45:3F:AA	.ıll	Blink
sensor	R_SHANK	68:0A:E2:53:23:DC	.ıl	Blink
sensor	R_THIGH	68:0A:E2:53:23:FB	.ıl	Blink
sensor	WAIST	68:0A:E2:53:23:F0	.ıl	Blink
sensor	L_SHANK	68:0A:E2:53:24:08	.ıll	Blink
sensor	L_THIGH	68:0A:E2:53:23:0E	.ıl	Blink

KAM App *(cont.)*

13) Enter App Configuration Settings including the Subject's Height and Weight

App Configuration

Trial Name	trial_1

Save Options

Save Mode	xlsx ⌄

User Info

Subject Weight (Kg)	59
Subject Height (m)	1.79

KAM App *(cont.)*

14) Click "Start" to Start Running the App

| KAM | ⌄ | Start | Stop | ✔ *Ready to collect data* |

15) After the Trial is Finished, Click "Stop"

| KAM | ⌄ | Start | Stop | *App running* |

16) After Clicking "Stop", a File from that Trial will Appear under Download Data. Click the File (e.g. trial_1) to Download it to the Computer or Phone.

Data Management

☐ Name	Date▲	Duration	App	Type	Size	Rename	Delete
☐ trial_1	2021-12-12-18-33-14	0:00:19	KAM	.xlsx	2.4 MB	✎	🗑

KAM App *(cont.)*

Description of Data in Downloaded File

time (sec): time since trial start

KAM: right knee adduction moment

Stance_Flag: 1 for stance phase, 0 for swing phase or not walking

SensorIndex_1/2/3/4/5/6/7: index of raw sensor data

AccelX/Y/Z_1/2/3/4/5/6/7 (m/s^2): raw acceleration data

GyroX/Y/Z_1/2/3/4/5/6/7 (deg/s): raw gyroscope data

MagX/Y/Z_1/2/3/4/5/6/7 (µT): raw magnetometer data

Quat1/2/3/4_1/2/3/4/5/6/7: quaternion data

Sampletime_1/2/3/4/5/6/7: timestamp of each sensor

Package_1/2/3/4/5/6/7: package number of each sensor