

# **MyoSpark Electrode Placement Guide**

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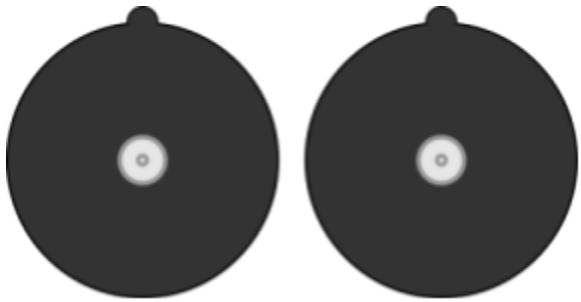
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# Electrode and Stimulator Placement

MyoSpark uses bipolar stimulation, meaning two electrodes are needed for each stimulation target (muscle, nerve). Bipolar stimulation can be done with two monopolar electrodes or a single bipolar electrode. MyoSpark electrodes with a single snap connector are monopolar electrodes, and electrodes with two snap connectors are bipolar. Stimulation with monopolar electrodes will activate nerves below and between the electrodes, and increasing stimulation activates more nerves in the area. Bipolar electrodes only activate nerves directly below them.



Pair of monopolar MyoSpark electrodes



Bipolar MyoSpark electrode

A MyoSpark stimulator uses magnets to attach to a bipolar electrode and apply stimulation through it. A stimulation cable can be connected to the stimulator's USB-C port for connection to a second bipolar electrode or pair of monopolar electrodes. This second channel of stimulation can be used to stimulate a nearby muscle or nerve.


The following table illustrates recommended electrode and stimulator placement for various parts of the body. Optimal electrode placement for each person will vary, so try adjusting the electrode placement for the best results.



**WARNING: Do not place electrodes directly over or across the heart or on the chest, neck, face, or head. Stimulating these body parts can result in serious harm.**

# Electrode Placement Guide

**NOTE:** Always keep at least 1 cm (0.5 in) of space between monopolar electrodes. If they touch during use, the stimulation channel could become short circuited, reducing stimulation effectiveness. Always place electrodes on the skin under clothing—some electrodes are shown placed over clothing to make them easier to see.

Stimulation Target	Electrode and Stimulator Placement Photos	Placement Guidance
<b>Traps (upper)</b> Scapular elevation / shoulder shrug (upper trapezius)		Position one bipolar or two monopolar electrodes along the fibers of the upper trapezius as shown. Place the upper monopolar electrode midway between the spine and shoulder. Place the lower electrode below and medial to the upper electrode, between the spine and scapula.

## **Rotator cuff**

External shoulder rotation  
(infraspinatus,  
teres minor)



Place one bipolar electrode or two monopolar electrodes just below the spine of the scapula, angled in a superolateral direction. Place the upper monopolar electrode below the spine of the scapula and over the greater tubercle of the humerus. Place the lower electrode below and medial to the upper electrode, over the infraspinatus and teres minor muscle bellies.

**Rotator cuff  
(upper)**  
Shoulder  
stabilization  
(supraspinatus)



Palpate the supraspinatus fossa above the spine of the scapula and place one bipolar electrode. Alternatively, place one monopolar electrode toward the medial border within the fossa over the muscle belly and the other on the lateral aspect, close to but not overlapping the acromion.

**Lats**  
Shoulder adduction  
/ extension  
(latissimus dorsi)



Palpate the inferior angle of the scapula and place one bipolar electrode or two monopolar electrodes as shown. Orient the electrodes vertically and slightly medially to align with lat muscle fibers.

**Traps (mid)**  
Scapular retraction  
(middle trapezius)



Place one bipolar or two monopolar electrodes in the space medial/vertebral border of the scapula and the spinous processes of the upper thoracic vertebrae. Orient the electrodes vertically along the border of the scapula.

**Traps (lower)**  
Scapular depression  
(lower trapezius)



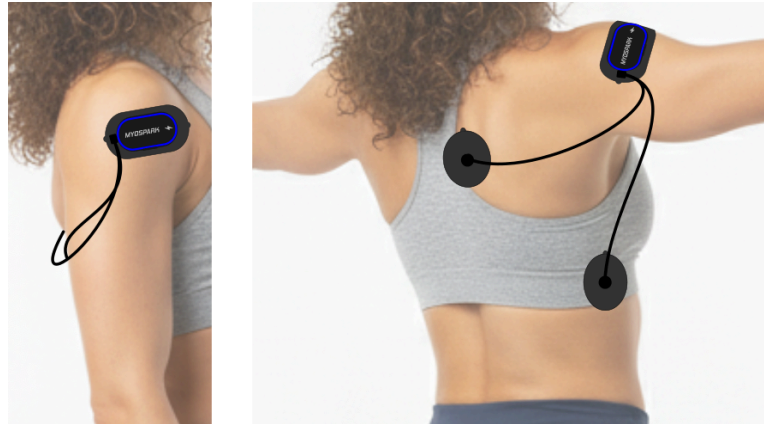
Place one bipolar or two monopolar electrodes over the lower part of the trapezius, between the spine and scapula. Orient the electrodes vertically, with the top electrode slightly lateral towards the scapula and the bottom electrode closer to the spine.

**Scapula control**  
Scapular retraction  
/ depression  
(rhomboids,  
serratus anterior)



Position electrodes to simultaneously target the rhomboids (medial to the scapula) and the serratus anterior (at the mid-axillary line over ribs 6-7) muscle for scapular retraction and depression.

**Shoulder flexion  
with scapula  
control**



Place one bipolar on the anterior (front) deltoid and attach the stimulator. Place two monopolar electrodes for scapula control, and connect these to the stimulator using a stimulation cable.

### **Sublux correction**

Shoulder  
subluxation  
correction (deltoids,  
triceps brachii)



Position the electrodes to simultaneously target the deltoids (lateral and rear) and the medial/long head of the triceps to pull the humerus into the shoulder joint.

### **Lower back**

Trunk extension /  
core stabilization  
(erector spinae)



Place electrodes in the middle of the lower back, to either side of the spine but not directly over the spine. Shift electrodes up or down depending on your target.

## Abs

Trunk flexion / core stabilization (rectus abdominis)



Place electrodes just above and to either side of the belly button. Shift electrodes up or down depending on your target.

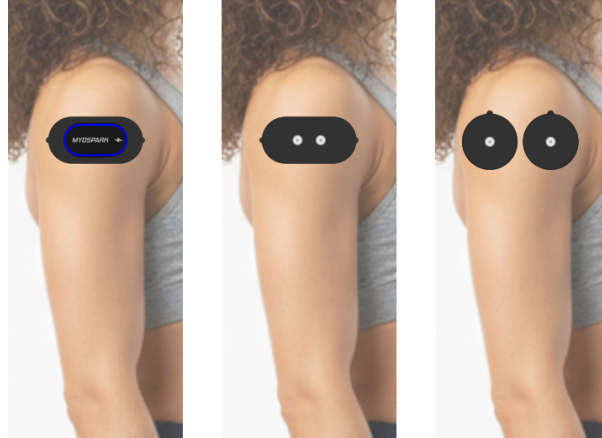
## Cough

Cough / exhalation assistance (rectus abdominis, external obliques)



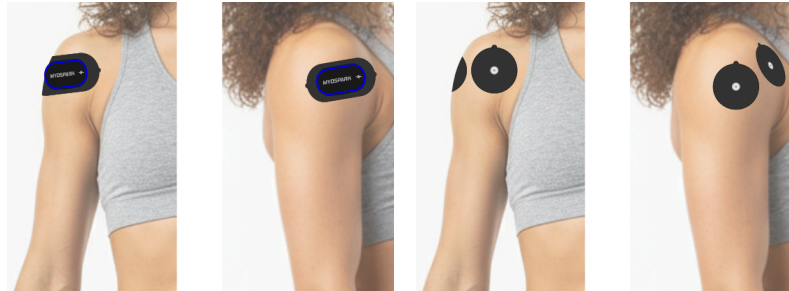
Place one bipolar electrode or pair of monopolar electrodes, oriented vertically, next to the belly button. Place another bipolar electrode or monopolar pair lateral and slightly proximal to the first electrodes for activating obliques.

**Delts (side)**  
Shoulder abduction  
(deltoids)



Place one bipolar electrode or two monopolar electrodes side by side across the outside of the deltoids (lateral), 1-2 finger widths below the acromion or shoulder bones.

**Delts (front)**  
Shoulder flexion /  
scaption (deltoids)



Place one bipolar electrode or two monopolar electrodes side by side across the front of the deltoids (anterior and lateral), 1-2 finger widths below the acromion or shoulder bones.

**Triceps**  
Elbow extension  
(triceps brachii)



Place one bipolar electrode or two monopolar electrodes slightly above the middle of the triceps muscle belly, along the midline.

**Biceps**  
Elbow flexion  
(biceps brachii)



Place one bipolar electrode or two monopolar electrodes over the middle of the muscle belly of the bicep, along and just medial to the midline.

**Elbow flexion /  
extension**



Place a bipolar electrode over the middle of the muscle belly of the bicep, and place two monopolar electrodes over the triceps. Attach the stimulator to the bipolar electrode and connect it to the monopolar electrodes.

**Forearm (outer)  
Wrist / finger  
extension (extensor  
carpi, extensor  
digitorum)**



Place one bipolar electrode or two monopolar electrodes in the center of the outer forearm, along the midline.

### **Forearm (inner)**

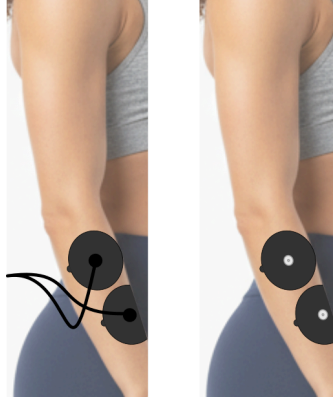
Wrist / finger flexion  
(flexor carpi, flexor digitorum, palmaris longus)



Place one bipolar electrode or two monopolar electrodes in the center of the inner forearm, along the midline.

### **Supinator**

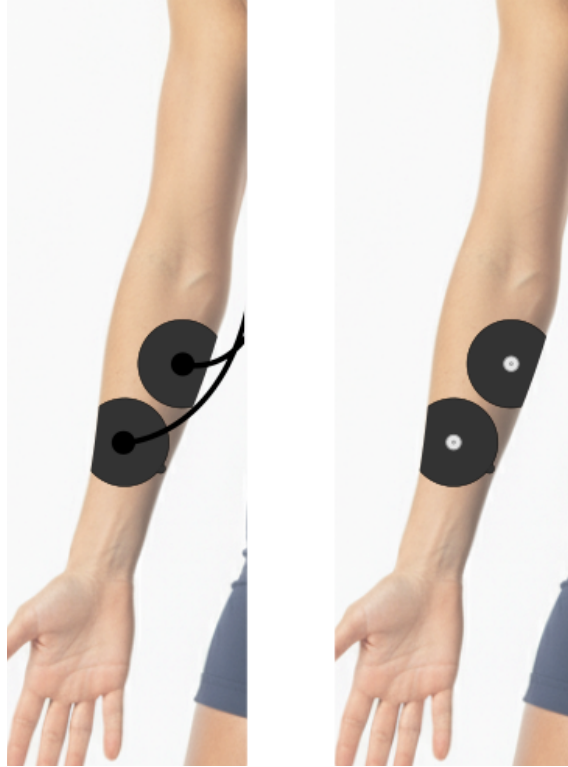
Forearm supination  
(supinator)



Place one monopolar electrode just distal to the lateral epicondyle of the elbow. Place the second monopolar electrode 1-2 finger widths further down the forearm and positioned more toward the center of the forearm.

## **Pronators**

Forearm pronation  
(pronator teres,  
pronator  
quadratus)



Place one monopolar electrode on the inside of the forearm, medial and close to the elbow. Place the second monopolar electrode on the middle of the inner forearm, just lateral of the midline.

**Thumb flexion /  
opposition**



Use two extra small electrodes. Place one on the thenar eminence and the other on the hypothenar eminence of the palm. Connect these electrodes to Channel 2 on a MyoSpark stimulator using a stimulation cable (USB-C). A second channel may be used to return the thumb from opposition (thumb extension / abduction).

**Thumb extension  
/ abduction**

Extensor pollicis  
longus and  
brevis, abductor  
pollicis longus



Use two extra small electrodes. Place one along the midline of the outer forearm, slightly distal to the middle (toward the wrist). Place the second electrode halfway between the first electrode and the base of the thumb, as shown.

Thumb extension / abduction can be combined with wrist / finger extension to open the hand. See “Open hand” electrode placement guidance.

**Palm flexion**  
Intrinsic muscles



Use two extra small electrodes. Place one in the center of the palm and the other along the midline of the inner forearm, slightly distal to the middle (toward the wrist).

If appropriate, a small electrode may be used on the forearm instead of an extra small electrode.

Palm flexion is part of lumbrical grasp / cylindrical grasp.

**Lumbrical grasp /  
cylindrical grip**  
Palm, finger, and  
thumb flexion



Use Channel 1 of a MyoSpark stimulator to stimulate wrist / finger flexors and Channel 2 to stimulate palm flexion. Use a medium bipolar electrode for Channel 1 and two extra small electrodes for Channel 2.

A second stimulator may be used to stimulate thumb / finger extensors to open the hand. See “Open hand” electrode placement guidance.

### **Open hand**

Wrist / finger extension with Channel 1, thumb extension / abduction with Channel 2



Use Channel 1 of a MyoSpark stimulator to stimulate wrist / finger extensors and Channel 2 to stimulate thumb extension / abduction. Use a medium bipolar electrode for Channel 1 and two extra small electrodes for Channel 2.

This “Open hand” configuration is useful for opening the hand after a grasp (grasp and release, requires a second stimulator to be applied to the wrist / finger / thumb flexors for grasp).

**Power grasp**  
Finger flexion  
with thumb  
flexion and  
opposition



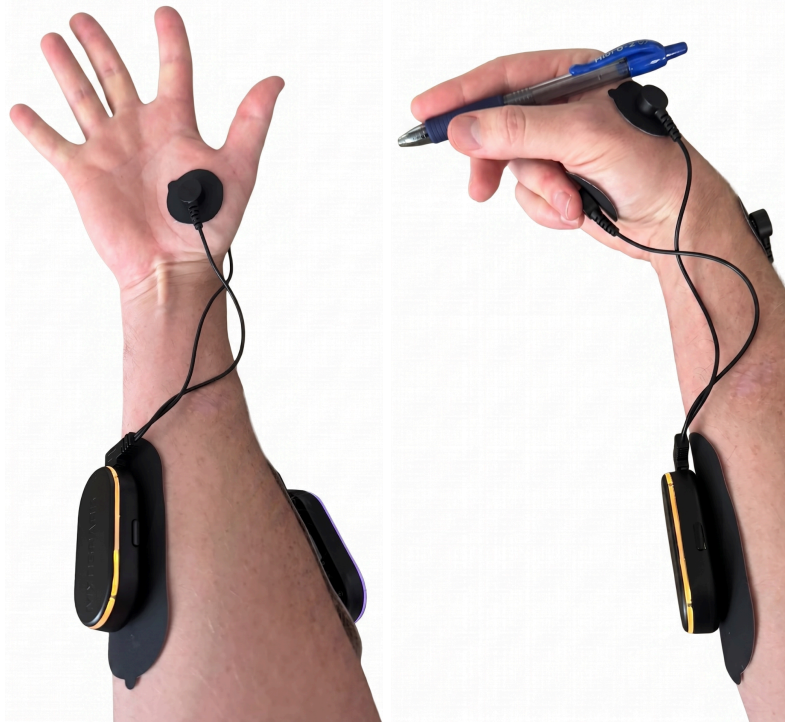
Use Channel 1 of a MyoSpark stimulator to stimulate wrist / finger flexors and Channel 2 to stimulate thumb flexion / opposition. Use a medium bipolar electrode for Channel 1 and two extra small electrodes for Channel 2 (over the thenar eminence and the dorsal surface of the thenar web).

Channel 1 may cause excessive wrist flexion which can be countered by a second stimulator targeting wrist extension (co-contraction; agonist-antagonist).

## Handwriting grasp

### / pinch grip

Finger flexion  
with thumb  
opposition



Use Channel 1 of a MyoSpark stimulator to stimulate wrist / finger flexors and Channel 2 to stimulate thumb flexion / opposition. Use a medium bipolar electrode for Channel 1 and two extra small electrodes for Channel 2 (over the thenar eminence and the dorsal surface of the thenar web).

Handwriting grasp is similar to power grasp except that Channel 1 is placed more medially on the inner forearm (ulnar bias) and lower stimulation intensities are sufficient.

**Lateral pinch / key grip**

Finger flexion with controlled thumb flexion / opposition against the index finger



Use Channel 1 of a MyoSpark stimulator to stimulate wrist / finger flexors and Channel 2 to stimulate thumb flexion / opposition. Use a medium bipolar electrode for Channel 1 and two extra small electrodes for Channel 2 (over the thenar eminence and the hypothenar eminence).

Lateral pinch / key grip is similar to handwriting grip except that Channel 2 is targeting thumb opposition for lateral pinch, where handwriting grip produces more thumb adduction.

**Hook grasp**  
Finger flexion  
without thumb  
flexion or  
opposition (may  
include thumb  
extension /  
abduction)



Use Channel 1 of a MyoSpark stimulator to stimulate wrist / finger flexors and Channel 2 to stimulate thumb extension / abduction (optional). Use a medium bipolar electrode for Channel 1 and two extra small electrodes for Channel 2.

Compared to other grasp configurations, hook grasp has Channel 1 placed more along the midline and distal (toward the wrist) to maximize finger flexor activation.

## Glutes

Hip extension  
(gluteus maximus,  
gluteus medius,  
gluteus minimis)



Place one bipolar electrode across the top of the glutes, just below the pant line. Place a second bipolar electrode or pair of monopolar electrodes side by side across the bottom of the glutes, just above the gluteal fold. Alternatively, place a pair of monopolar electrodes side by side across the top of the glutes, or place a single bipolar electrode across the muscle belly.

**For motion-controlled activities,** place the stimulator on the lower back or the thigh and stimulate the glutes with Channel 2, as shown. Glutes will activate with torso or thigh motion.

## Hip abductors

Hip abduction /  
stabilization  
(gluteus medius,  
gluteus minimus,  
tensor fascia latae)



Place one bipolar electrode just below the iliac crest on the lateral aspect of the glutes. Place a second bipolar electrode or pair of monopolar electrodes across the lateral bottom part of the glutes, just above the gluteal fold. Alternatively, place a pair of monopolar electrodes side by side below the iliac crest, or place a single bipolar electrode across the muscle belly.

**For motion-controlled activities**, place the stimulator on the lower back or the thigh and stimulate abductors with Channel 2, as shown. Abductors will activate with torso or thigh motion.

**Hip flexors**  
Hip flexion  
(sartorius, tensor  
fascia latae)



Place one bipolar or two monopolar electrodes just below and slightly medial to the anterior superior iliac spine (ASIS). Place two additional monopolar electrodes on the front of the thigh, one electrode 2-3 finger widths below the ASIS and a distal electrode on the middle of the inside of the thigh.

**For motion-controlled activities**, place the stimulator on the front of the thigh over the belly of the sartorius muscle, and place two monopolar electrodes just below and slightly medial to the ASIS. Hip flexors will activate thigh motion.

### Hams

Knee flexion / hip extension (biceps femoris, semimembranosus, semitendinosus)



Place electrodes in the center of the back of the thigh, with electrodes oriented along the midline of the thigh, parallel to the femur.

### Quads

Knee extension (quadriceps femoris, vastus lateralis, vastus medialis, vastus intermedius)



Place electrodes distally on the front of the thigh, approximately 2 finger widths above the knee cap, and orient electrodes diagonally, with the lateral electrode positioned more proximal than the medial electrode.

**Knee flexion / extension**

Knee flexion / hip extension (biceps femoris, semimembranosus, semitendinosus)

Knee extension (quadriceps femoris, vastus lateralis, vastus medialis, vastus intermedius)



Place one bipolar electrode on the quadriceps and two monopolar electrodes on the hamstrings. Place the stimulator on the bipolar electrode and connect it to the monopolar electrodes with a stimulation cable.

## Shins

Ankle dorsiflexion  
(tibialis anterior)

Ankle eversion  
(fibularis muscles)

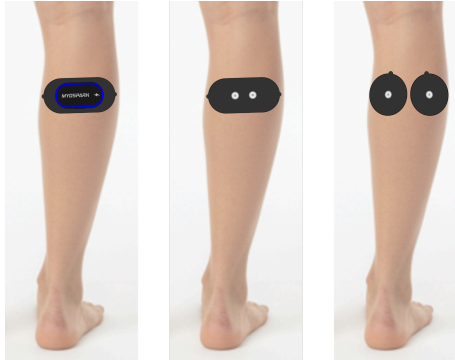


Place electrodes on the upper part of the tibialis anterior muscle, just below the tibial plateau and just lateral to the anterior ridge of the tibia. Avoid stimulating directly over the bone, as the area may be sensitive.

Place electrodes more lateral for ankle eversion.

## Calves

Ankle plantar flexion  
(gastrocnemius, soleus)



Place electrodes side by side on the upper half of the calf (gastrocnemius), on the back of the lower leg. When using a second channel, place the second set of electrodes side by side on the lower half of the calf.

**Ankle dorsiflexion  
/ plantar flexion**

Ankle dorsiflexion  
(tibialis anterior)

Ankle plantar  
flexion  
(gastrocnemius,  
soleus)



Attach a bipolar electrode or pair of monopolar electrodes to the tibialis anterior muscle, just below the tibial plateau and lateral to the anterior ridge of the tibia. Attach another bipolar electrode or pair of monopolar electrodes to the calf, positioned on the upper half of the gastrocnemius. Attach the stimulator to a bipolar electrode, and use a stimulation cable to connect it to the other electrode(s).

# Revision History

Rev.	Date	Details
0	2026-03-27	Initial release.
1	2026-06-15	<ul style="list-style-type: none"><li>• Added electrode placement for hands and fingers using extra small electrodes.</li><li>• Added motion-control guidance for hip flexors, glutes, and hip abductors.</li><li>• Added guidance to shin placement for targeting ankle eversion.</li><li>• Added warning not to stimulate over the heart, neck, face, or head.</li><li>• Increased image resolution.</li></ul>