

# BIOWAVEPRO<sup>®</sup>

SMARTER PAIN BLOCKING TECHNOLOGY

## quick reference for Biowave Noninvasive Electrodes



There are 5 buttons that control the neurostimulator:

1. **Power ON/OFF button**
2. **PLUS (+) button to increase intensity or increase treatment time**
3. **MINUS (-) button to decrease intensity or decrease treatment time**
4. **TIME button to enter TIME mode in order to change treatment time**
5. **OK button to accept and set a new treatment time**

### DIRECTIONS FOR USE

1. Clean skin and place electrodes on body. See Electrode Placement Examples inside.
2. Attach leadwire cable to electrodes. Either blue leadwire connector can be attached to either electrode.
3. On leadwire cable, align red dot on metal connector so it is facing up. Gently slide metal connector into device so it clicks in place.
4. Turn on device. Start up screen should read 0.0%.
5. Start treatment by pressing the PLUS (+) button.
6. Continue to press the PLUS (+) button throughout the treatment so that a steady strong but comfortable tingling and pressure sensation is felt under the electrode(s) covering the pain site(s).

**See User's Manual for detailed instructions.**

**Designed to Block Pain<sup>™</sup>**

# BioWave Noninvasive Electrodes

The BiowavePRO Neuromodulation Pain Therapy System can be used with the following noninvasive reusable electrodes manufactured by BioWave Corporation:

## **B-Set BWEN01-B:** **Pain in Two Locations**

**Two 2.0" diameter round equal area electrodes for treating:**

- Two locations of pain,
- One location of pain and the source or origin of the pain,
- Pain over a large area

**Pain conditions treated with B-set Electrodes include:**

- Bilateral or unilateral pain in the low back and buttocks
- Sacroiliac joint pain
- Neuropathic pain - radiculopathies, neuritis, CRPS
- Two locations or bilateral pain in the cervical or thoracic region of the back
- Pain centered directly over the spine
- Two locations or bilateral pain in extremities



## **E-Set BWEN02-E:** **Pain in a Single Location - Extremities**

One 1.375" diameter round electrode placed over the pain site, and one 2" x 4" rectangular dispersive electrode placed over a bony prominence - a comfortable location to receive stimulation.

**Pain conditions treated with E-set Electrodes include:**

- One location of pain on extremities including knees, ankles, feet, toes, neck, shoulders, elbows, wrists, hands and fingers



## **U-Set BWEN03-U:** **Pain in a Single Location - Mid-torso**

One 2.0" diameter round electrode placed over the pain site, and one 5" x 8" rectangular dispersive electrode placed horizontally across the lumbar area.

**Pain conditions treated with U-set Electrodes include:**

- One location of pain in the mid-torso part of the body including ribs, obliques, hips, buttocks, groin, adductors, abductors, gluteus maximus, hamstrings and quadriceps



See opposite page for electrode placement examples.

**Warning: Electrodes must not touch each other.**

## Electrode Placement Rationale

BiowavePRO electrode placements are different from conventional electrical stimulation. The mixing of the proprietary therapeutic signals occurs in a 2.5 to 3 inch diameter hemisphere (half of a sphere) beneath and surrounding each electrode, not along the surface of the skin between the electrodes. As a result, electrodes need to be placed directly over locations of pain.

Electrical signals can be focused to different parts of the body by pairing electrodes of different areas with one another.

### B-Set: 2 Equal Area Round Electrodes for 2 Locations of Pain

If two electrodes of equal area are used, then two distinct volumes of tissue can be treated simultaneously. If the two equal area electrodes are placed close together so that there is only 1.0 inch of space between them, the pair can be used to treat one larger volume of tissue. The B-Set is also used to treat pain from radiculopathies. One electrode is placed over the origin of the pain, for example, directly over the spine, but slightly to the side in the direction of the nerve root in which the pain signals are traveling. The second electrode is placed proximally over where the pain first presents itself, for example, on the buttock.

### E-Set and U-Set: 1 Small Round Electrode for a Single Location of Pain and 1 Larger Rectangular Dispersive Electrode for a Bony Prominence (Comfortable Location)

By pairing an electrode of smaller area with an electrode of larger area, the density of the therapeutic low frequency electric field is greater in the volume of tissue beneath the smaller area electrode. Therefore, the smaller round electrode needs to be placed directly over the primary painful area. The larger rectangular electrode is still active but acts as a dispersive electrode and must be placed over a bony prominence typically near the treatment site. Placement of the larger electrode over a bony prominence allows the patient to more comfortably increase the intensity of the signal to higher levels allowing a stronger electric field to encompass the pain site under the smaller primary electrode.

## Body Position During Treatment

Position of the body during the treatment is important. Generally, the tissue being treated should be a little taut or in a stretch position. Generally, sitting in a supported position on an athletic training or physical therapy table is best for most treatment locations on the body.

### Low Back and Buttocks

The torso should be at approximately 90 degrees to the legs causing tissue in the low back and buttocks to be more taut. If necessary, the patient can be in a prone position during the treatment.

### Groin, Hips, Quadriceps, Hamstrings

Lying supine with the legs straight is best for groin and hip treatments. Sitting with the knee bent at 90 degrees is best for quadriceps treatments. Sitting with the torso at 90 degrees to the legs and the knees straight is best for hamstring treatments.

### Knees

The knee should be bent at approximately 90 degrees. For posterior knee treatments, the knee should be kept straight.

### Ankles and Feet

Sitting with the foot pressing on a flat surface is the best position. The foot should be at approximately 90 degrees to the tibia. If necessary, the foot may be elevated during treatment.

### Neck and Shoulders

For neck treatments, the head should be bent forward to keep the tissue on the back of the neck more taut. Use medical tape over the back of the electrodes to help hold them in place during the treatment. For shoulder treatments, sitting in a supported position is typically most comfortable for the patient. For anterior shoulder treatments, if the patient can tolerate some internal rotation, exposing the subacromial space allows for a more focused treatment on the anterior of the shoulder. This may be beneficial for treating for example supraspinatus tendinitis.

### Elbows, Wrists, Hands and Fingers

The patient should rest their forearm in their lap or on a table and hold a ball or a rolled up towel to keep their hand and fingers in a comfortable position during the treatment.

## Motion During Treatment

The sensation from the treatment is a deep smooth tingling and pressure sensation as the muscle is held in tension in the volume of tissue being treated. Motion may cause a stronger or weaker sensation and will cause the location of the electrical field to shift slightly internally. Shifting of the electrical field is most prevalent when treating shoulders, elbows, wrists, hands, fingers and feet.

**The goal is to have the patient gently articulate the joint at the treatment location to shift the sensation caused by the electrical field so that it focuses directly onto and encompasses the primary location of pain. This is a fine tuning of the treatment that will provide the best treatment result.**

## Pain Conditions

Biowave is indicated to treat chronic, acute or postoperative pain including both nociceptive and neuropathic pain. Physicians and patients report significant efficacy from treating:

- Acute and chronic tendinopathies
- Ligamentous issues - joint sprains
- Myofascial pain - trigger points
- Adhesive Capsulitis
- Neuropathic pain - radiculopathies, neuritis, CRPS, phantom limb
- Traumatic acute pain - contusions
- Postoperative pain to facilitate rehabilitation
- Muscle spasm
- Pelvic floor pain - interstitial cystitis

## Treatment Regimen Protocols

### Intensity Settings

Patients should increase the intensity based on sensation (not an intensity number) to a level that is as strong as possible but still comfortable. The body adapts to the electrical field very quickly over the first 2 minutes and then less so over the remainder of the 30-minute treatment. As hypoesthesia is induced in the volume of tissue beneath each electrode and the sensation diminishes, patients should continue to increase the intensity level with individual presses of the (+) button.

Typical intensity ranges are as follows:

- Knees, ankles, feet: 60% - 90%
- Lumbar and thoracic back, shoulders: 40% - 60%
- Neck, elbow, wrist: 30% - 50%

Generally, patients should try to reach a minimum intensity level of 30%. Some patients may tolerate more, some less.

### Athletic Training

Three 30-minute treatments separated by 2-3 hours: immediately before practice or a game, immediately after practice or a game, and time permitting 2-3 hours later.

### Physical Therapy

Use BiowavePRO to facilitate motion and manage pain simultaneously. Use cohesive wrap or tape to help hold the electrodes in place. Start the BiowavePRO treatment at the beginning of the physical therapy regimen in place of heat for 8 minutes (BiowavePRO may be used in conjunction with heat). After 8 minutes, decrease the intensity by 5% to 10% to take the edge off of the sensation from the electrical field. While continuing the BiowavePRO treatment, *begin* active or passive range of motion, exercise or stretching therapy to significantly increase range of motion with less pain and facilitate therapy. The patient can move more resistance through a greater range of motion with less pain. Patients will have minimal post exercise soreness because of the long carryover effect from the treatment.

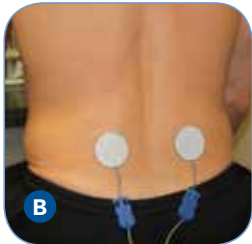
### Pain Management

One 30-minute treatment per day or on an as needed basis. May be used up to four times per day or as needed with each 30 minute treatment separated by approximately 2 hours.

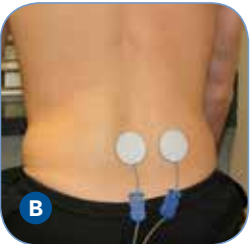
BiowavePRO is complimentary with heat or cold therapy. Use wrap or another barrier between the electrodes and the temperature stimulus.

# Electrode Placement Examples

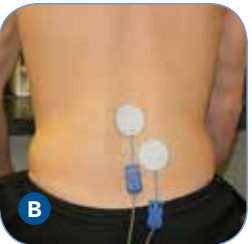
## Low Back



Bilateral Low Back Pain



Unilateral Low Back Pain  
Focused on one Side of Spine



Unilateral Low Back Pain  
Focused Over a Facet Joint



Low Back Pain Focused  
Over the Spine



Sacroiliac (SI) Joint Pain,  
Intersititial Cystitis

## Ribs/Obliques/Groin/Quadriceps/Hamstrings



Rib or Oblique Pain  
in One Location



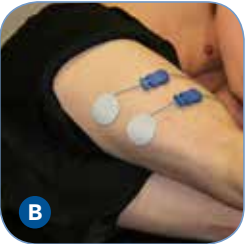
Groin Pain in One Location



Quadriceps Pain  
in One Location



Hamstring Pain  
in One Location



Hamstring Pain  
Over Large Area

## Hips



Hip Pain in One Location

## Knees



Pain Throughout Entire Knee  
(e.g. OA, ACL, TKR)



Medial Knee Pain (e.g. MCL  
Sprain, Bursitis, OA)



Quadriceps Tendinitis



Patellar Tendinitis

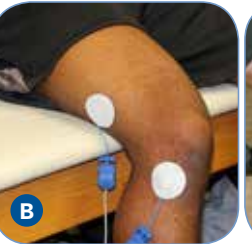
## Knees



Lateral Knee Pain (e.g. LCL  
Sprain, Bursitis, OA)



Illiotalibial (IT) Band Pain  
in One Location



Illiotalibial (IT) Band Pain  
in Two Locations



Posterior Knee Pain

## Ankles



High Ankle Sprain with Pain  
in One Location

## Ankles and Feet



Foot or Ankle Pain  
in Two Locations



Lateral Low Ankle or Foot  
Pain in One Location



Medial Low Ankle or Foot  
Pain in One Location



Lateral Posterior Foot Pain



Plantar Fasciitis

**B** B-Set  
2 Locations  
of Pain

**E** E-Set  
1 Location  
of Pain

**U** U-Set  
1 Location  
of Pain

**WARNING:** Electrodes must not touch each other.  
See back cover for electrode descriptions.



## Ankles and Feet



Achilles Tendinitis



Achilles Tendinitis with Primary Pain at Insertion Point

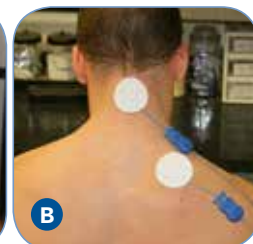


Neuroma Pain, Metatarsal Joint Pain or Turf Toe Pain

## Neck



Cervical or Neck Pain in One Location



Cervical or Neck Pain in Two Locations

## Neck



Cervical or Neck Pain with Secondary Radiating Pain



Bilateral Neck Pain (Equal Pain in Two Locations)



Neck Pain Over Several Cervical Discs

## Shoulders



Anterior Shoulder Pain (e.g. Biceps Tendinitis)



Posterior Shoulder Pain (e.g. Infraspinatus Strain)

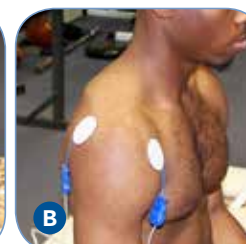
## Shoulders



Pain at Edge of Shoulder (e.g. Rotator Cuff Tendinitis)



Pain at AC Joint or Inside the Shoulder (e.g. AC Sprain)



Shoulder Pain in Two Locations or Frozen Shoulder



Trapezius Pain in One Location



Bilateral Trapezius Pain

## Elbows



Lateral Elbow Pain (e.g. Lateral Epicondylitis)



Medial Elbow Pain (e.g. Medial Epicondylitis)



Posterior Elbow Pain (e.g. Triceps Tendinitis)

## Wrists, Hands and Fingers



Posterior Wrist Pain (e.g. Sprains, Strains, Tendinosis)



Anterior Wrist Pain (e.g. Sprains, Strains, Tendinosis)

## Wrists, Hands and Fingers



Lateral Wrist Pain (e.g. TFCC Sprain, Tendinosis)



Finger Sprain at Base of Thumb (e.g. UCL Sprain)



Pain at Metacarpal Phalangeal or Interphalangeal Joint



Alternative Placement of Rectangular Electrode for Small Diameter Wrists



Alternative Placement of Rectangular Electrode for Small Diameter Wrists

**B** B-Set  
2 Locations of Pain

**E** E-Set  
1 Location of Pain

**U** U-Set  
1 Location of Pain

**WARNING:** Electrodes must not touch each other.  
See back cover for electrode descriptions.



Manufactured by  
BioWave Corporation  
Norwalk, CT

©2007-2018 Biowave Corporation

## Need help?

- **1-877-BIOWAVE x 1**  
( 2 4 6 - 9 2 8 3 )
- **support@biowave.com**
- **biowave.com**

MADE IN  
**USA**



Device must only be  
used with power  
supply provided.

See User's Manual for  
more information.