

# MONOPHASIC (HIGH VOLT) PROTOCOLS

The Monophasic, or High Volt (HVPC), waveform is a one-directional twin peaked pulse that has either negative or positive polarity. The duration of pulses may vary from 45 to 100  $\mu$ Sec, and pulse rates can vary from 1-200 Hz. The Monophasic waveform's very short pulse duration and very high peak amplitude resulting in a comfortable stimulation. Monophasic can selectively excite sensory, motor, and pain-conducting fibers. It can also be used for electroanalgesia, reduction of edema and muscle spasm, and muscle reeducation. Monophasic has also be used to enhance wound healing.



## High Volt Protocols by Pamela G. Unger, PT

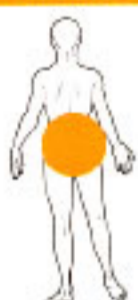
### ACUTE PAIN-Electrode placement dependent upon injury location



**MODE:** Continuous  
**FREQUENCY:** 60-120 pps  
**POLARITY:** + or -  
**TIME:** 20 Minutes

**DOSAGE:** Sensory  
**REGIMEN:** Daily x 1 week  
Following 3x/week  
**ELECTRODES:** Mono or Bipolar

### CHRONIC PAIN-Electrode placement dependent upon injury location



**MODE:** Continuous  
**FREQUENCY:** 2-5 pps  
**POLARITY:** + or -  
**TIME:** 20-60 Minutes

**DOSAGE:** Motor  
**REGIMEN:** 3x/week  
**ELECTRODES:** Bipolar

### MUSCLE SPASM-Electrode placement dependent upon injury location



**MODE:** Continuous  
**FREQUENCY:** 100-120 pps  
**POLARITY:** + or -  
**TIME:** 10-20 Minutes

**DOSAGE:** Motor  
**REGIMEN:** 3x/week  
**ELECTRODES:** Bipolar



# Monophasic (High Volt) Protocols

## ACUTE EDEMA-Electrode placement dependent upon injury location



**MODE:** Continuous  
**FREQUENCY:** 120 pps  
**POLARITY:** + or -  
**TIME:** 60 Min. to several hours

**DOSAGE:** Sensory  
**REGIMEN:** Daily  
**ELECTRODES:** Monopolar

## CHRONIC EDEMA-Electrode placement dependent upon injury location



**MODE:** Surge (1:3)  
**FREQUENCY:** 30-50 pps  
**POLARITY:** + or -  
**TIME:** Up to one hour

**DOSAGE:** Motor  
**REGIMEN:** 3x/week to daily  
**ELECTRODES:** Bipolar over muscles

## TRIGGER POINTS-Electrode placement dependent upon injury location



**MODE:** Continuous  
**FREQUENCY:** 80-120 pps  
**POLARITY:** + or -  
**TIME:** 15 Sec. up to one min. each point,  
 progress up to 10 min.

**DOSAGE:** Painful sensation  
**REGIMEN:** 3x/weekly to daily  
**ELECTRODES:** Probe or Monopolar

## TISSUE DAMAGE-Electrode placement dependent upon injury location



**MODE:** Continuous  
**FREQUENCY:** 50-120 pps  
**POLARITY:** -Bacterial, +Stimulation  
**TIME:** 30-60 Minutes

**DOSAGE:** -150 Volts(30mA peak)  
 +100 Volts(20mA peak)  
**REGIMEN:** Daily to BID  
**ELECTRODES:** Monopolar, Electrode  
 over damage

## MUSCLE RE-EDUCATION-Electrode placement dependent upon injury location



**MODE:** Surge (1:5)  
**FREQUENCY:** 30-50 pps  
**POLARITY:** + or -  
**TIME:** 5-30 Minutes

**DOSAGE:** Motor  
**REGIMEN:** 3x/weekly to daily  
**ELECTRODES:** Bipolar or Probe

References: Alan, G. DeDonenico, G., High Voltage Stimulation: An Integrated Approach to Clinical Electrotherapy, Chattanooga Corp., Chattanooga, TN, 1987.

Gersh, MR, Electrotherapy in Rehabilitation, FA Davis, Philadelphia, PA, 1992.

Snyder-Mackler, L., Robinson, AJ, Clinical Electrophysiology, William and Wilkins, Baltimore, MD, 1989.

NOTE: The practitioner is advised to check the product information and new research indications and contraindications before applying this modality. These protocols are only guidelines and are not meant to indicate that there are not other waveforms, parameters, or modalities applicable to the stated indications. Any individual patient(pathology) must be individually evaluated to determine optimal treatment parameters.

CPT Codes for Electrical Stim include: 97014-electrical stimulation (unattended), 97112-neuromuscular re-education, and 97118-electrical stimulation (manual)