

*excerpt from eMedicine.com*

Lateral/medial epicondylitis is a common overuse injury resulting in inflammation of the extensor or the flexor muscle origin. This inflammation leads to microtears of the tendon and ultimately, tissue failure.

The patient usually describes lateral/medial elbow pain of gradual onset.

- Symptoms are typically unilateral.
- Pain may be present at night.
- The aching pain generally increases with activity. The patient may describe symptoms occurring during simple activities of daily living, (e.g. picking up a cup of coffee or a gallon of milk or shaking hands with someone).
- History of an acute injury may be reported (e.g. taking a divot in golf, throwing a pitch in baseball, a hard serve in tennis).
- Causes also may be related to the patient's occupation (e.g. those requiring repetitive actions like using a screwdriver or hammer).

Most commonly, the examination reveals localized tenderness to palpation just distal and anterior to the lateral epicondyle or the anterior aspect of the medial epicondyle.

- Pain increases with resisted wrist extension, especially with the elbow in extension; and/or pronation or wrist flexion.
- The patient may have a weakened grip on the affected side.
- Range of motion (ROM) of the elbow and wrist usually is within normal limits.
- In chronic, refractory cases, fully assess shoulder integrity and scapular stability. Weakness or instability of the scapular stabilizers may perpetuate lateral epicondylitis by leading to overuse of the wrist extensors.
- Patients may have symptoms of ulnar neuropathy (eg, a positive elbow flexion test, a positive Tinel sign).

### Integrated Treatment Plan (Chronic)

**Frequency: 2-3 visits/week**

Treatment approach is driven by the area of complaint and associated symptoms of pain and functional limitations. Therapists must determine diagnosis and overall treatment plan based upon patient observation and clinical judgment. This protocol addresses chronic upper limb complaints and the recommended frequency of treatment is 2-3 visits/week until function improves. Standard functional activities should be included. Perform activities while the 5002 electrode or the Flexible Array is attached to the patient.

**CPT Codes:** 97110/97530-Therapeutic procedure/activities; 97112-Neuromuscular reeducation; 97535-Self-care/home management; 97032-Attended Interactive neurostimulation

Refer to InterX Training Guides for further treatment frequency, duration and stimulation setting guidelines. Treatment approach is appropriate for conditions distal to the elbow as well. Modify treatment plan for acute or post-surgical conditions as well as conditions that primarily involve the shoulder or cervical spine.

### Interactive Therapy BASICS

- Record patient history relating to the complaint, specifically seeking complicating and/or related chronic factors
- Stimulation intensity should remain **COMFORTABLY** strong
- **Vary the stimulation setting** throughout the Treatment Plan
- Pain AND **AS** will present in different locations throughout treatment and visits --- **follow the patient and body responses**

**AS** Low impedance  
"Active Sites"

**SCAN → TARGET → DYNAMIC**

### Functional Measurement Tools

The following measurement tools can be used to objectively demonstrate functional improvements in patient status and will enhance documentation requirements to support communication and reimbursement efforts.

DASH inventory

OPTIMAL (APTA)

SF-36 or Short form

Brief Pain Questionnaire w/ Function

American Shoulder and Elbow Society Scoring system (ASES)

### Similar or Related Conditions

Cervical radiculopathy

Radial/cubital tunnel syndrome

Neuralgic amyotrophy

Synovitis of the radiohumeral joint

Posterior interosseous nerve palsy

Posterior elbow swelling

Flexor-pronator strain


Pronator teres syndrome

Thoracic outlet syndrome

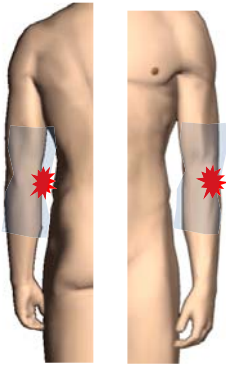
 Flexible Array placement
  Point of pain complaint
  AS Low impedance "Active" sites
  Pain upon movement



## InterX 5002 Protocol

**Setting:**  60  $\mu$ s <OR> 240\*  $\mu$ s  
**Duration:** 20 minutes

- 1 10 min** Slowly **SCAN** area related to complaint of pain and/or dysfunction. Notice the **SCAN** area is larger than the area of complaint, it is important to **SCAN** a large enough area to identify significant "Active" sites. (AR  $\mu$  value, drag, sound, patient sensation, redness). Assess shoulder involvement as well as related muscles and tendons.



**SCAN** entire circumference above AND below the elbow

**SCAN Options**

a) Vary **SCAN** area based upon treatment response and patient report at each visit

b) Cervico-thoracic Region & Spinal Root

*Note: InterX stimulation can be applied directly over the spine*

Nerve pathway Dermatomes C5 to T1

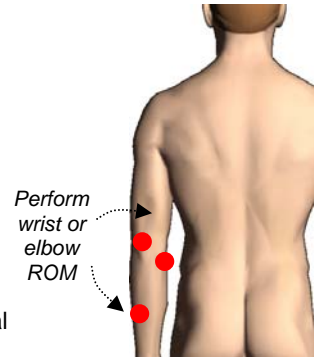
- 2 5 min** **TARGET** "Active" Sites  
Typically body will respond more strongly to 3-5 sites  
Focus on areas with greatest response.  
Point-stim and paint in 4 directions.




- 3 5 min** **DYNAMIC**
- Setting:**  $\mu$ 90-360 <OR>  $\mu$ 30-120

Direct patient through **range of motion and functional activities** observing the nerve and kinesthetic pathway(s) which elicit the pain and/or dysfunction

Treat any elicited points of discomfort (●) for 30 seconds and then re-test. Continue for a total of 5 minutes.



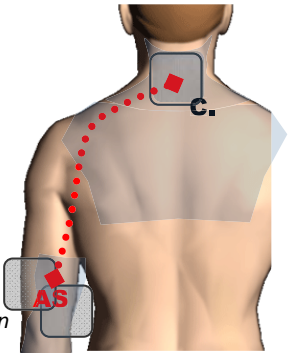
## Flexible Array Protocol

**Scan setting:**  60  $\mu$ s <OR> 240\*  $\mu$ s  
**Setting:**  Cyc 2 <OR>  Cyc3  
**Duration:** 20-30 minutes

- 1 5 min** **SCAN** related areas as described in Protocol A. Identify primary "Active" sites for further treatment based upon greatest complaint or response to stimulation at rest or movement.

- 2 10 min** InterX with the Flexible Array provides the ability to complete **TARGET & DYNAMIC** at the same time. Select one or two Flexible Array placements based upon therapy activities identified to be completed. Flexible Array can be used while performing exercise or therapist guided activities and/or interventions per the treatment plan. Recommended Flexible Array placements:

- A. Primary "Active" Sites identified during **SCAN**
- B. Primary **point of pain** at rest or functional activities
- C. Spinal root related to primary pain



A./B.  
Based upon complaint

- 3 5 min** **Finish** treated area(s) in **Setting:**  $\mu$ 30-120. Slide the InterX 5002 electrodes in four directions over the area treated under the Flexible Array. Finish  $\leftrightarrow$  other key points where the patient reports continued pain or limitations.



**SCAN → TARGET → DYNAMIC**