



**PROTOCOL FOR COX® TECHNIC FLEXION DISTRACTION AND  
DECOMPRESSION OF THORACIC SPINE:  
THORACOLUMBAR DISC HERNIATION AS WELL AS DEGENERATIVE  
SPONDYLOTIC CHANGES IN THE THORACIC, CERVICO-THORACIC, AND  
THORACO-LUMBAR SPINES**

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**All protocols start with and are continually monitored by tolerance testing. Neurological signs and their progression are monitored carefully.**

**1. Preparatory Care.**

- A. Ensure all locks are secure.
- B. Patient lies prone with the face on the headpiece with eyes in center of cutouts in the headpiece.

**2. Notes.**

- A. TDH (thoracic disc herniation) treatment basically utilizes two distraction approaches:
  - i. **From T1 to T9**, the occipital restraint is used to deliver cephalward distraction while contacting the spinous process inferior to the TDH as the distraction Protocol I mobilization is given
  - ii. **From T9 to L2**, the caudal section delivers the distraction. (Start without ankle cuffs and institute their placement as patient relief and tolerance testing allows.) Protocol I is used. The doctor hand contact is a cephalward long-y axis delivery as the caudal section moves caudally.
- B. Start with manual distraction and careful tolerance testing until the patient has centralization of pain to the spine; then institute Protocol II with testing for automated long-y axis delivery. In some cases, the entire treatment will be manually delivered. This depends on patient response and tolerance testing.

**3. Hand Contact Options for Various Thoracic Protocols.**

- A. Full palm with the thenar on the spinous process of the superior level of the spine being treated.
- B. Knuckles along the sides of the vertebrae
- C. Index finger–thumb contact of the spinous process
- D. Two-handed (while table is in auto long-y axis mode controlled by control box setting or footswitch)

**4. Tolerance Testing.**

- A. If using ankle cuffs, check that there is no aggravation of the condition.
- B. If using the thoracic strap, check that there is no aggravation of the condition.

**5. MANUAL DISTRACTION USING CAUDAL SECTION OF THE TABLE.**

- A. Start long-y axis distraction manipulation for manual application of Protocol I.
- B. Ankle cuffs are in place depending upon patient tolerance; that is, if no sense of discomfort is felt when tested with the cuff on, use the cuff.
  - i. Remember that here we are distracting many segments of the thoracic and lumbar spine so ankle cuffs may provide improved distraction force.

- ii. Always treat below patient tolerance to the force. If that ankle cuffs cause discomfort, do not use them but rather use the patient's lower extremity weight as the distraction force.
- iii. Keep in mind that less force can be the best approach for patients.
- C. As manual distraction with flexion of the caudal section takes place, the doctor's thenar hand contact is on the spinous process superior to the level of the spine to be distracted.
- D. Protocol I (five 4 second distraction session provided three times) is delivered. The patient is quizzed as to any discomfort during the process.
  - i. NOTE: This form of distraction Protocol I can be delivered up to the foramen magnum level thus providing full spine distraction. For some patients this provides a comfortable full spine distraction.
- E. Protocol II is started when the patient feels no discomfort with Protocol I via tolerance testing which continues throughout delivery of Protocol II.

## 6. AUTOMATED LONG-Y AXIS DISTRACTION SPINE MOBILIZATION USING THE CAUDAL SECTION OF THE TABLE.

- A. If manual long-y axis Protocol I distraction is well tolerated by the patient, long-y axis automated distraction can be used.

NOTE: Careful tolerance testing during this procedure is followed.

- B. Procedure Options:

- i. **Using Attended Automated Axial Distraction *Manually* Applied**

- 1. Apply ankle cuffs, if appropriate.
- 2. Allow the table to axially distract by foot strip or handle pressure application.

The 2 methods are described:

- a. **Using the footswitch**, apply long-y axis distraction. The level of the spine to be distracted is stabilized with *a two-handed contact of the spinous process* as distraction is delivered. Release the foot switch to allow the table to return to neutral. Protocol I is delivered, and Protocol instituted as patient tolerance allows.
- b. **Using the finger button on the tiller bar** to institute long y axis distraction, the doctor's free hand contacts the spinous process to resist distraction and applies the distractive force at the desired level. The doctor's thenar contact - or an index finger-thumb contact of the spinous process - is utilized. As the distraction force is applied against the doctor stabilized spine level, Protocol I is delivered. The usual five 4-second distractions are applied at the isolated segment until distraction motion is felt. Release the finger button to allow the table to return to neutral.

- ii. **Using Attended Automated Axial Distraction *Automated* Applied**

- 1. Ankle cuffs are used based on tolerance testing.
- 2. The computerized settings are used so the instrument moves in long-y axis distraction to the force and movement settings desired.
- 3. Distraction is delivered with *a two-handed contact of the appropriate spinous process* at the appropriate level to be distracted. Protocol I is administered to each level desired. Protocol II is started when Protocol I is well accepted, and radicular pain is at least 50% less.

- C. NOTE: A high-velocity, low-amplitude adjustment may be given during lumbar attended-automated axial distraction as just described. This can be applied at any desired level of thoracic spine according to patient need and tolerance in a gentle, non-force manner.

## **7. MANUAL DISTRACTION USING CERVICAL AXIAL DISTRACTION HEADPIECE.**

- A. **Protocol I** - Apply the occipital restraint system to stabilize the head.
- B. Stand at the head of the table.
- C. Use a *palmar contact on the spinous* below the thoracic segment to be distracted
- D. Pull on the ball handle of the cervical headpiece to distract the segment to the point of elastic resistance. Move slightly beyond that point, minding at all times patient tolerance. Resistance or loss of mobility is distracted to regain such lost movement, all with tolerance testing of the patient throughout the process.
- E. Gently return to neutral.
- F. Move caudad to the next thoracic spinous, and repeat.
- G. **Protocol II** is started when no radicular pain is present or presenting radicular pain is at least 50% decreased or is no radicular pain is present. Always start with Protocol I to reduce stenosis by increasing the disc height, increasing foraminal area and decreasing intradiscal pressure before instituting physiological range of motion to each distracted segment or series of segments.
- H. Manual distraction can also be delivered with the occipital restraint in place. Cephalward distraction with the headpiece and occipital restraint applying the distraction, the doctor hand can move the cervico-thoracic or thoracic segments into long-y axis distraction. This starts with Protocol I and moves to Protocol II as patient positive response and tolerance testing permits.

## **8. AUTOMATED LONG-Y AXIS DISTRACTION SPINE MOBILIZATION USING THE CERVICAL AXIAL DISTRACTON HEADPIECE.**

- A. **MANALLY CONTROLLED AUTO DISTRACTION WITH OCCIPITAL RESTRAINT - FOOTSWITCH**
  - i. With the occipital restraint in place, and under tolerance testing, the doctor uses the footswitch to start long-y axis distraction. As distraction is delivered, the doctor delivers a cephalic resistance to the spine segment to institute distraction. As Protocol I is well tolerated and radicular pain is 50% reduced or not present, Protocol II is instituted with Protocol I.
  - ii. The doctor can use a two-handed contact of the spinous at the appropriate level as the foot switch to is pressed to allow the table to move caudally against resistance of the doctor hand contact. Release the footswitch to allow the table to return to neutral.
- B. **TIMER CONTROLLED AUTO DISTRACTION WITH OCCIPITAL RESTRAINT – CONTROL BOX**
  - i. Using the computer control box, set the caudal section of the table to apply distraction. Set the time for the table to run in *auto mode*, and set the distance for distraction movement to be used while you adjust the patient. Use a two-handed contact of the appropriate spinous at the appropriate level.
  - ii. NOTE: A high-velocity, low-amplitude adjustment may be given during thoracic attended automated axial distraction as just described. This can be applied at any desired level of thoracic spine according to patient need and tolerance in a gentle, non-force manner.