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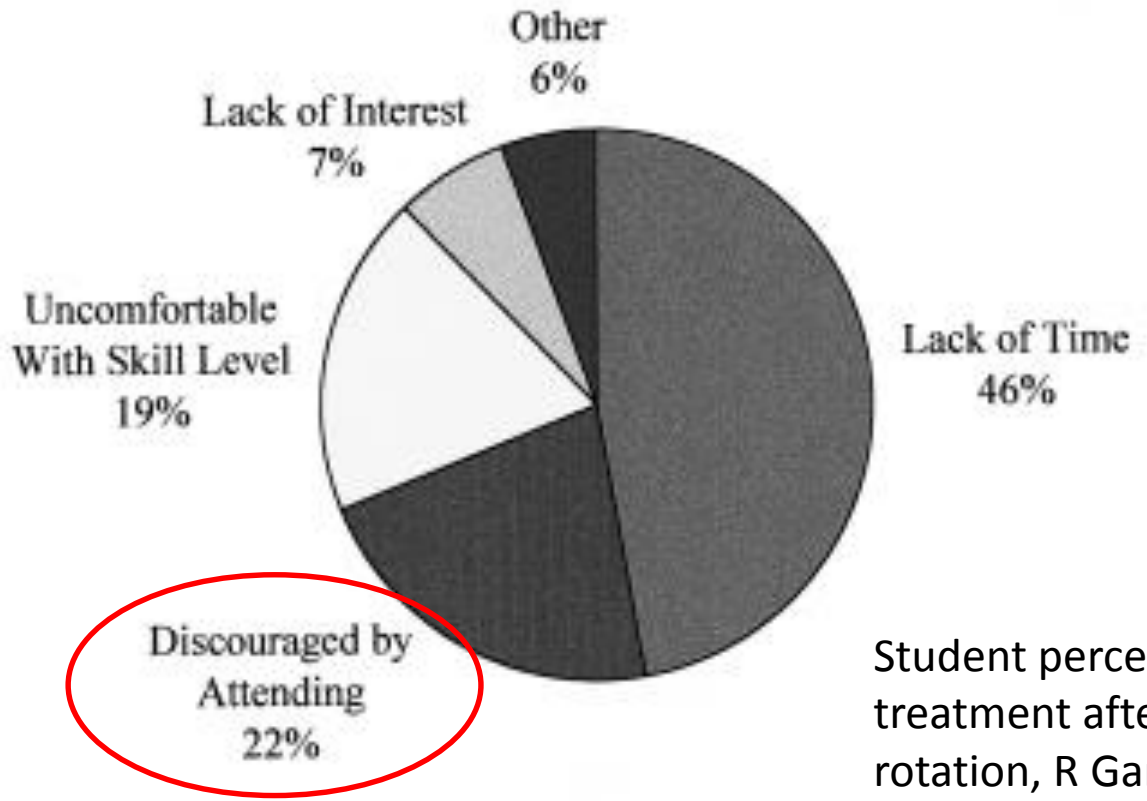
OMM Considerations in the Surgical Patient CME Module

Why Are We Doing This Faculty Development?

- Fewer students are doing Osteopathic Manipulative Treatment (OMT) on their rotations
  - There is a declining use of OMT by DOs in the hospital and clinic settings
  - Increasing numbers of preceptors are MDs
    - No formal training in OMT
  - The more knowledgeable preceptors are, the more comfortable they are with allowing students to use OMT on their patients

Student Perceptions of Why Osteopathic Manipulative Treatment Was Not Used



Student perceptions of osteopathic manipulative treatment after completing a manipulative medicine rotation, R Gamber et al., JAOA, 2001

Goals of This Faculty Development Training Module

- To increase preceptors' knowledge of Osteopathic Principles and Practices (OPP)

- **To increase opportunities for students to think osteopathically and perform OMT on their rotations**

Program Objectives

- Encourage questioning of students on how they would approach specific patient populations osteopathically
- Increase comfort levels with OMT by knowing what it is and what the techniques look like
- Facilitate encouragement of students to do OMT

The Osteopathic Approach

- We teach students to approach a patient *osteopathically*, which means you look at the patient's disease process, the pathology and the physiology, and think about how you can affect them by applying osteopathic techniques
- There are a number of musculoskeletal inputs to systemic disease and for a given pathology in a given patient you need to figure out what percentage is coming from the musculoskeletal system. In a patient where the musculoskeletal input is significant, even very benign manipulative techniques can be very beneficial.

CME Module Content

- The most difficult part is choosing which techniques to do on a particular patient
- Our students spend two years learning osteopathic approaches as well as the techniques
- We have selected specific common clinical presentations and techniques that are particularly relevant to those disease processes
- These are simple, very non-invasive techniques that are very safe and effective

Student Objectives

- Students will be able to propose and perform, if allowed, appropriate osteopathic techniques for treatment.
- Student will demonstrate the ability to diagnose decreased rib compliance in the supine patient.
- Students will demonstrate the ability to treat decreased rib compliance effectively with rib raising.

Student Objectives Continued

- Students will demonstrate the ability to diagnose the diaphragm using rotation at the costal margins, and treat using indirect technique.
- Students will demonstrate the ability to perform lumbar paraspinal inhibition in the supine patient.

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Atelectasis

Contributions to Atelectasis During Surgery

Mechanical ventilation is submaximal and predisposes to closing of alveoli due to:

- Positive air pressure of mechanical ventilation not reaching some of the alveoli
- Decreased pulmonary excursion inhibits lymphatic drainage of lungs
  - This leads to pooling of fluids within the lungs
  - This pooling of fluids increases the local surface tension, making inflation of the alveoli difficult

Submaximal Ventilation After Surgery

Active ventilation is submaximal due to:

- Residual inhibitory effect of anesthetic
- Ribcage and thoracic spine articulations stiff from prolonged immobility
- Splinting of the abdominal muscles of respiration due to surgical pain
- Pooling of fluids from lack of previous lymphatic drainage
- Since nociceptive input from the lungs enters the nervous system at the C3-5 spinal levels, the strain on the lungs during surgery is thought to subsequently inhibit the phrenic nerve (which is derived from C3-5).

Benefits of Increasing Respiratory Excursion

- Increasing respiratory excursion will:
  - Increase lymphatic drainage, which will reduce the pooling of fluids, and therefore:
    - Decrease the work of breathing
    - Decrease the availability of growth medium
    - Help present antigen to the immune system and deliver immune mediators to lung tissue
  - Help re-inflate collapsed alveoli

Techniques to Increase Respiratory Excursion

- Increase diaphragmatic excursion by:
  - Treatment of the diaphragm itself
  - Treatment of the phrenic nerve via C3-5
- Treat the thoracic spine and ribs. This will enhance respiratory excursion for 3 reasons:
  - Give the rib cage articulations a greater range of motion.
  - Decrease the work of breathing. In a patient recovering from surgery, this can be a significant factor.
  - Chest breathing will be less painful than abdominal breathing for the patient after abdominal surgery.

Prevention/Treatment

- OMT
  - OA
  - C3-5 (Phrenic Nerve)
  - Diaphragm Release
  - Rib Dysfunction
- Deep Breathing Exercises after surgery
- Encourage coughing
- Restore mobility as soon as possible

Rib Diagnosis in the Supine Patient

- In the supine hospitalized patient, check for rib compliance by placing fingers medial to the rib angles, and springing them antero-laterally.

Rib Raising

- Place fingers medial to the angle of the ribs and traction them antero-laterally.

Figure 7.76. Step 2.

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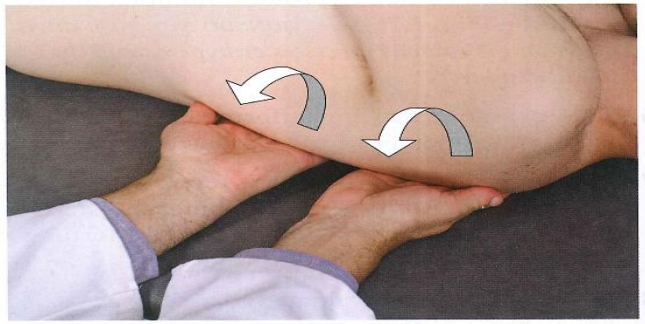

Figure 7.78. Step 3.

Diaphragm Diagnosis and Indirect Treatment in the Supine Patient

- With hands at the costal margins as shown, gently rotate to the left and to the right and see if motion to either side is restricted.
- To treat, rotate to the side of ease, and wait for it to release.

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Post-Operative Ileus

Post-Op Ileus – Causative Factors

- Manipulation of the abdominal contents can cause a viscero-somatic reflex. If a facilitated segment is created, this may result in constant sympathetic stimulation of the intestines, which may predispose to an adynamic ileus.
- Pain management with narcotics can also contribute to an ileus.

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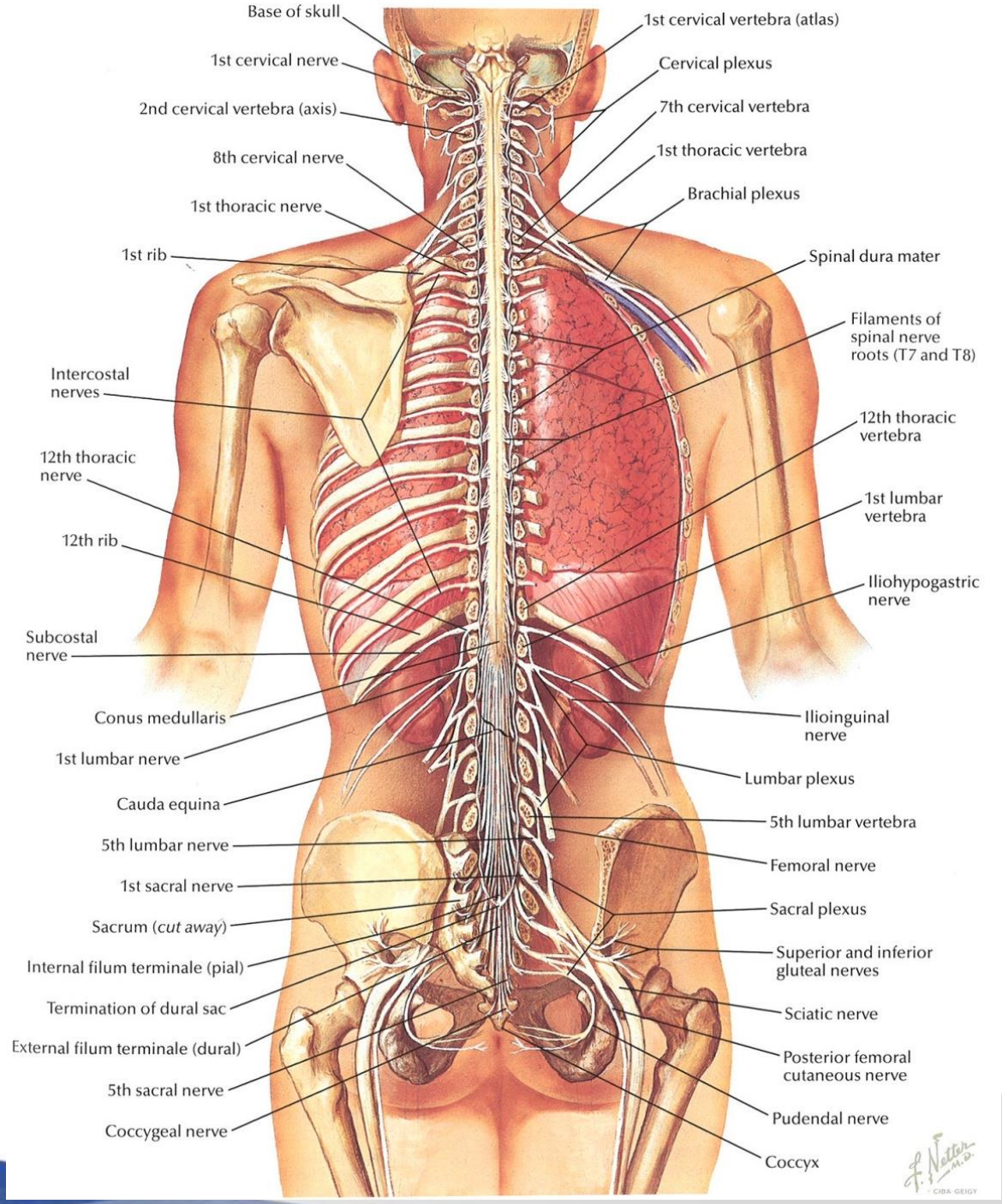
Sympathetic Chain Ganglia



Post-Op Treatment of GI Sympathetic Input – Method 1

- Treatment of post-operative ileus using osteopathic manipulation is commonly performed by lumbar paraspinal muscle inhibition.
- Place fingers medial to the lumbar paraspinal muscles and traction them antero-laterally. This can be either a series of tractions or a single long traction.
- In a series of 317 post-op patients who received this treatment only 1 developed post-op ileus (Hermann E. Precepts and Practice, *The DO*, 1965:163-4).

Figure 7.99. Step 3.

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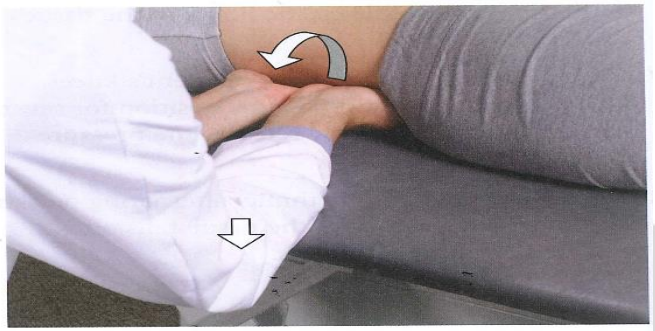

Figure 7.101. Step 4.

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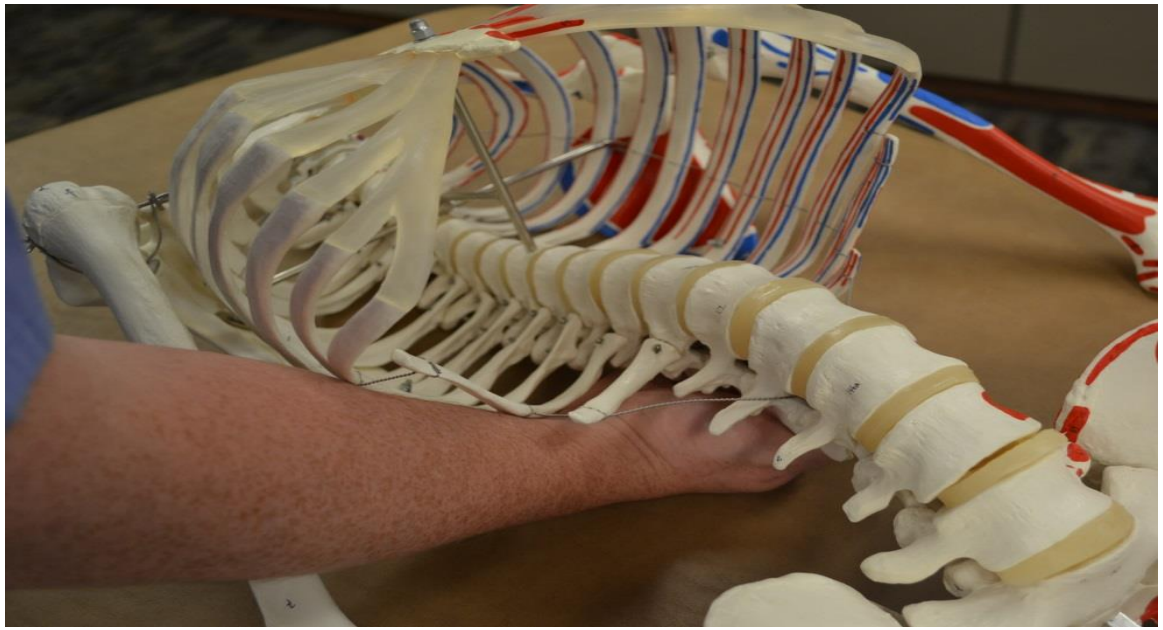
Post-Op Treatment of GI Sympathetic Input – Method 2



This is sometimes called “spine raising”.

Place open fist under thoraco-lumbar junction with:

- Fingers on 1 side of the spinous processes
- Heel of the palm on the other side of the spinous processes

Summary

- The surgical patient is predisposed to atelectasis because of submaximal mechanical and active ventilation and the pooling of fluids within the alveoli.
- To prevent and/or treat atelectasis, the patient's rib compliance should be assessed and rib raising should be done to increase compliance if necessary. The patient's diaphragm should also be assessed and treated indirectly.
- Patients who have had abdominal surgery are at increased risk of developing an adynamic ileus due to the constant sympathetic stimulation of the intestines via facilitated segments.
- These patients should be treated with lumbar paraspinal muscle inhibition to decrease sympathetic stimulation of the intestines.

Final Thoughts

- We hope you now feel more comfortable with the osteopathic approach to patients to prevent atelectasis and post-op ileus.
- Please challenge your students on their rationale regarding the osteopathic treatment of these patients.
- If you are able, allow students to use their great OMT skills to help your patients.
- **Help us increase opportunities for students to think osteopathically and perform OMT on their rotations!**

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Thank you!!