NEW YORK INSTITUTE OF TECHNOLOGY
College of Osteopathic Medicine

The Efficacy of Treating Thoracic Cage Counterstrain Tender Points with Varied Mobile Point Durations in a Classroom Setting

Jessica Smith, OMS II[1], Min-Kyung Jung, Ph.D.[1], James Docherty, OMS III[1], Patricia Kooyman, DO[1], Sheldon Yao, DO[1]

[1]New York Institute of Technology College of Osteopathic Medicine, Dept. of Osteopathic Medicine Old Westbury, NY 11568

TAP TO GO BACK TO KIOSK MENU

Introduction | Methods | *Tap on any header to jump to section!* | Results | Conclusion

Background Information

- Counterstrain (CS) Technique treats tender points by positioning the joint into a mobile point, a position of maximal comfort, and is held for 90 seconds.
- Various texts differ in the duration of CS treatment for rib tender points, with some stating 120 seconds versus 90 seconds.
- Longer treatment time may have been primarily a strategy by Dr. Jones to ensure patients were relaxed in the treatment position. There has been a national shift to use 90 seconds in clinical settings.
- However, there is limited evidence relating to efficacy differences between these durations.

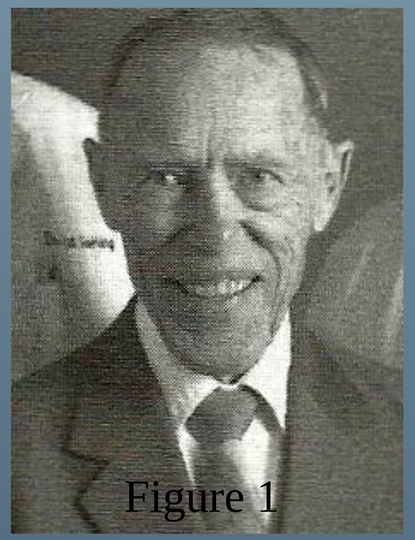


Figure 1

Dr. Lawrence "Larry" Jones
Founder of Counterstrain

Objective/Hypothesis

Objective: To determine if the efficacy of CS treatment of rib and thoracic tender points is significantly different if held for 90 or 120 seconds in a classroom setting.

Hypothesis: Application of holding a mobile point for 90 versus 120 seconds will be equally effective in reducing pain and treating thoracic and rib tender points.

Clinical Significance

- Using Osteopathic Manipulative Treatment (OMT) in the clinical setting is often limited by time constraints of each patient visit. If CS for 90 seconds is as effective as CS for 120 seconds, this information is important for physicians to be aware of to increase efficiency and efficacy at each visit.

NEW YORK INSTITUTE OF TECHNOLOGY
College of Osteopathic Medicine

The Efficacy of Treating Thoracic Cage Counterstrain Tender Points with Varied Mobile Point Durations in a Classroom Setting

Jessica Smith, OMS II[1], Min-Kyung Jung, Ph.D.[1], James Docherty, OMS III[1], Patricia Kooyman, DO[1], Sheldon Yao, DO[1]

[1]New York Institute of Technology College of Osteopathic Medicine, Dept. of Osteopathic Medicine Old Westbury, NY 11568

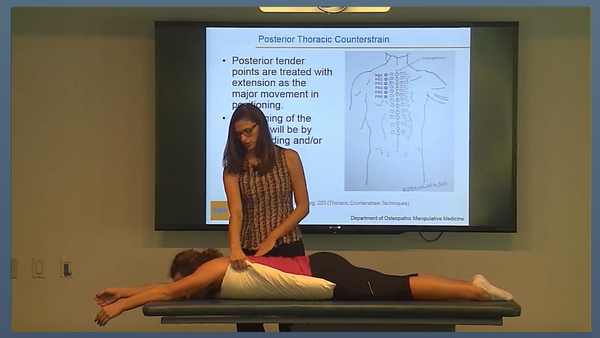
TAP TO RETURN TO KIOSK MENU

Introduction | Methods | Results | Conclusion

Tap on any header to jump to section!

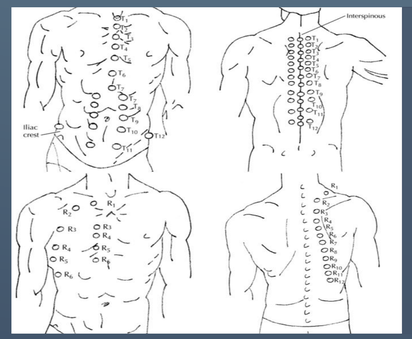
Methods

Tap to watch Video 1: Anterior Thoracic CS Treatment



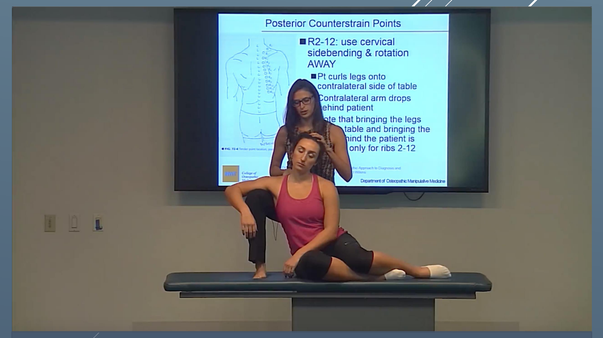
Tap to watch Video 2: Posterior Thoracic CS Treatment

- Participants were second year medical students from the New York Institute of Technology College of Osteopathic Medicine (NYITCOM) who treated their fellow student partner.
- Subjects were diagnosed with an anterior or posterior thoracic or rib tender point.
- Different lab sessions were randomized to hold the mobile point for either 90 or 120 seconds. The entire class was asked to complete an online form that documented the point, the duration of treatment, and the pre- and post pain level (on a scale of 0-10) of the tender point if there was a true tender point present.



Tap to see Counterstrain Points (Figures 2 -5)

Tap to watch Video 3: Anterior Rib CS Treatment



Tap to watch Video 4: Posterior Rib CS Treatment

The Efficacy of Treating Thoracic Cage Counterstrain Tender Points with Varied Mobile Point Durations in a Classroom Setting

NEW YORK INSTITUTE OF TECHNOLOGY
College of Osteopathic Medicine

Jessica Smith, OMS II[1], Min-Kyung Jung, Ph.D.[1], James Docherty, OMS III[1], Patricia Kooyman, DO[1], Sheldon Yao, DO[1]

[1]New York Institute of Technology College of Osteopathic Medicine, Dept. of Osteopathic Medicine Old Westbury, NY 11568

TAP TO RETURN TO KIOSK MENU

Introduction | Methods | *Tap on any header to jump to section!* | **Results** | Conclusion

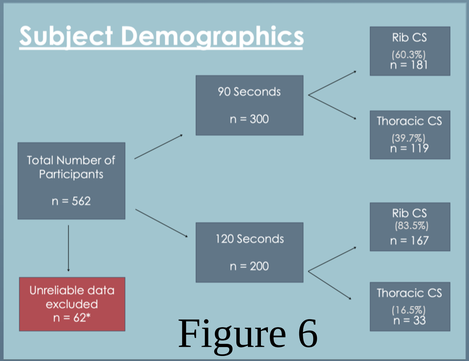
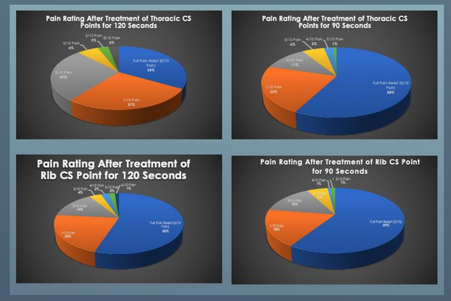


Figure 6



Figures 7- 10

Tap to Enlarge Images

- Data was collected via an online questionnaire and was analyzed using MS Excel and IBM SPSS Statistics 25.
- CS was found to be effective at relieving pain when treatment was held for 90 or 120 seconds at either ribs or thoracic tender points ($p<0.001$*, Figure 11 and Table 1).
- The data was further subdivided based on region and the pain achieved at the mobile point. A linear regression model was fitted to predict the change of pain score from the duration (90s. vs. 120s.) controlling for the pre-pain score in each subgroup of (CS Region, Mobile point pain) = (Rib, 0), (Rib, >0), (Thoracic, 0), and (Thoracic, >0).
- The mean pain reduction was not significantly different between the durations of treatment for Rib CS when reaching the mobile point of 0 or >0 or for Thoracic CS when reaching the mobile point of 0 ($p = 0.06$, $p = 0.54$, $p = 0.07$, respectively. Table 1).
- The mean pain reduction was found to be statistically significantly different between the durations of treatment for Thoracic CS if the mobile point was >0 with a p-value of 0.008* (Table 1).

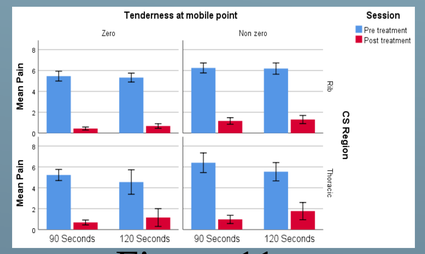


Figure 11

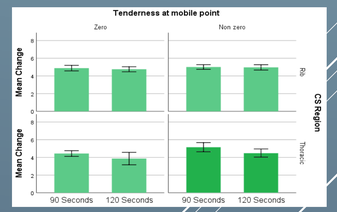


Figure 12

Linear regression to predict change in pain given pre-treatment pain and duration of treatment.		
Rib CS, mobile point tenderness = 0		
Predictors	Unstandardized B (95% CI)	p-value
Pre-treatment pain	0.95 (0.89, 1.00)	<0.001*
Duration	-0.25 (-0.52, 0.01)	0.06
Rib CS, mobile point tenderness > 0		
Predictors	Unstandardized B (95% CI)	p-value
Pre-treatment pain	0.80 (0.68, 0.92)	<0.001*
Duration	-0.15 (-0.62, 0.33)	0.54
Thoracic CS, mobile point tenderness = 0		
Predictors	Unstandardized B (95% CI)	p-value
Pre-treatment pain	0.87 (0.77, 0.96)	<0.001*
Duration	-0.56 (-1.17, 0.04)	0.07
Thoracic CS, mobile point tenderness > 0		
Predictors	Unstandardized B (95% CI)	p-value
Pre-treatment pain	0.78 (0.64, 0.91)	<0.001*
Duration	-0.99 (-1.71, -0.27)	0.008*

Table 1

Tap to Enlarge Images

NEW YORK INSTITUTE OF TECHNOLOGY
College of Osteopathic Medicine

The Efficacy of Treating Thoracic Cage Counterstrain Tender Points with Varied Mobile Point Durations in a Classroom Setting

Jessica Smith, OMS II[1], Min-Kyung Jung, Ph.D.[1], James Docherty, OMS III[1], Patricia Kooyman, DO[1], Sheldon Yao, DO[1]

[1]New York Institute of Technology College of Osteopathic Medicine, Dept. of Osteopathic Medicine Old Westbury, NY 11568

TAP TO RETURN TO KIOSK MENU

Introduction | Methods | *Tap on any header to jump to section!* | Results | **Conclusion**

Final Remarks

- CS was highly effective in reducing pain of both thoracic and rib tender points when treated for 90 or 120 seconds.
- These findings suggest that CS treatment of 90 seconds is non-inferior to 120 seconds for rib tender points.
- Thoracic CS treatment showed significance that 90 seconds produced greater pain reduction than 120 seconds (when mobile point was >0). However, this is possibly due to sampling bias due to the classroom settings.

Looking Forward

- Limitations of this study include that this was a classroom setting and the rib and thoracic tender points were diagnosed on non-symptomatic students.
- Further research is needed to correlate these findings in the clinical setting, especially in the case of the significant thoracic findings.

References

- DiGiovanna, Eileen L., et al. *An Osteopathic Approach to Diagnosis and Treatment*. Lippincott Williams and Wilkins, 2005.
- Glover, John C., et al. “37: Strain/Counterstrain.” *Foundations of Osteopathic Medicine: Philosophy, Science, Clinical Applications, and Research*, by Michael A. Seffinger, Wolters Kluwer, 2018, pp. 864–884.
- Jones, Lawrence H., et al. “Thoracic Spine and Costo-Vertebral Joints.” *Strain-Counterstrain*, Jones Strain-Counterstrain, Inc., 1995, pp. 50–67.
- Nicholas, Alexander S., Nicholas, Evan A. “Chapter 9: Counterstrain Techniques.” *Atlas of Osteopathic Techniques*, 3rd ed., Wolters Kluwer, 2016.

- Figure 1. https://castlebodywork.com/jones-lawrence/
- Figures 2-5. DiGiovanna, Eileen L., et al. *An Osteopathic Approach to Diagnosis and Treatment*. Lippincott Williams and Wilkins, 2005.

Anterior Thoracic Points

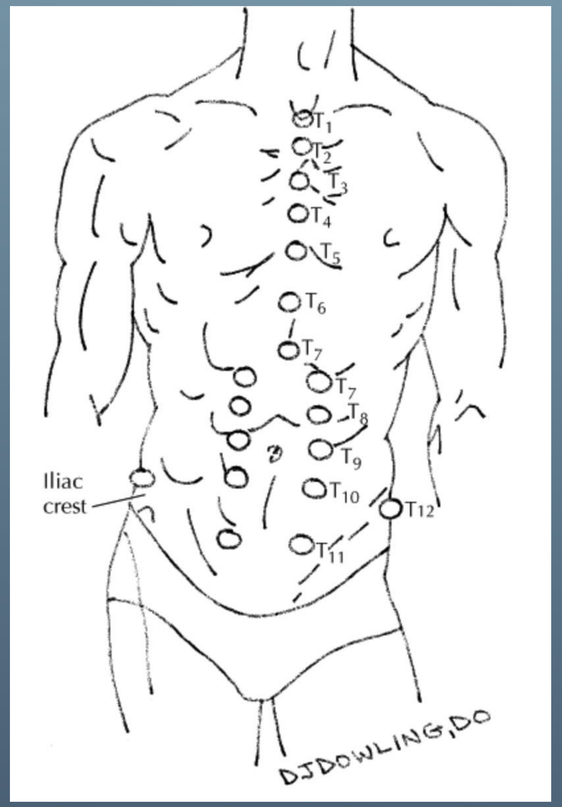


Figure 2

Posterior Thoracic Points

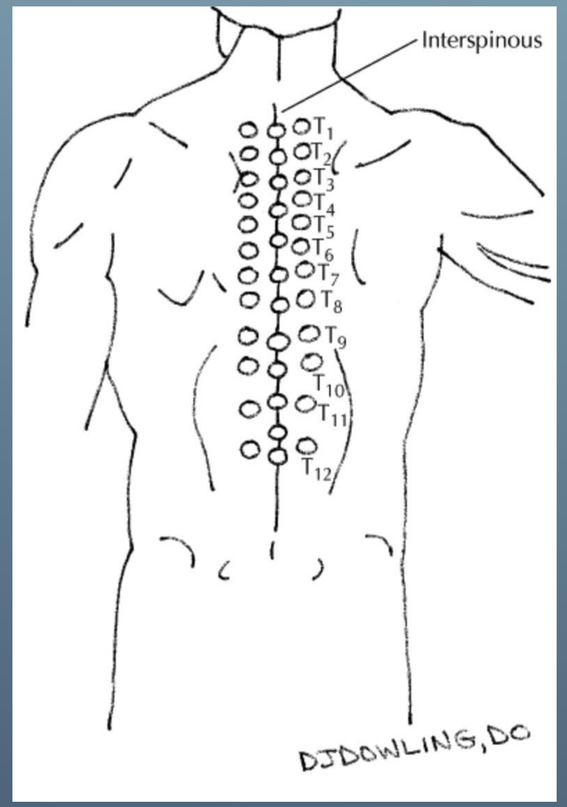


Figure 3

Anterior Rib Points

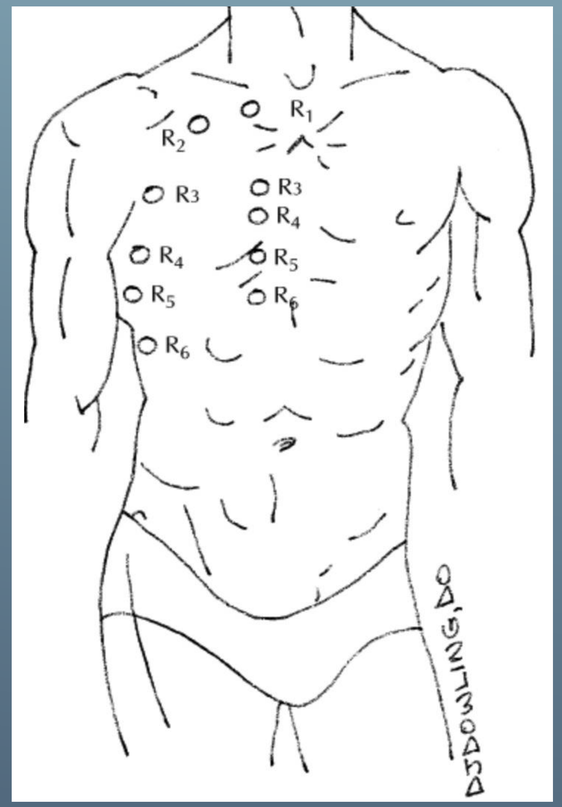


Figure 4

Posterior Rib Points

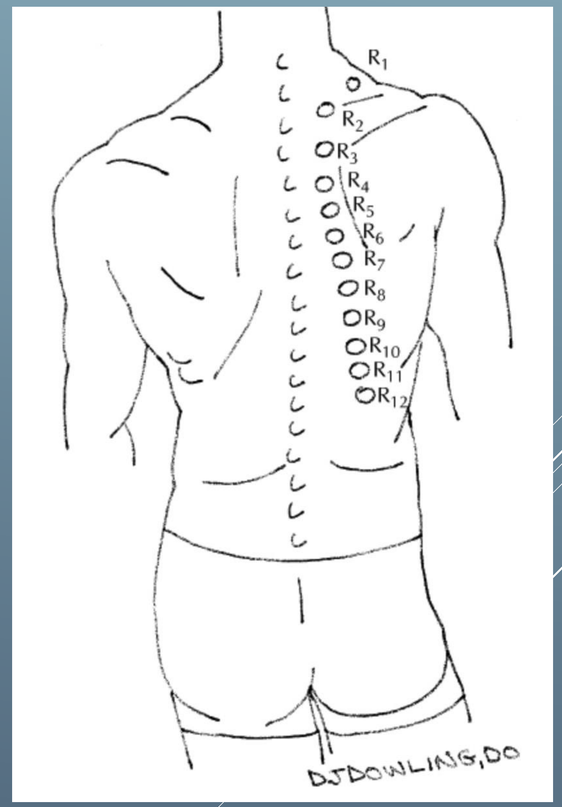
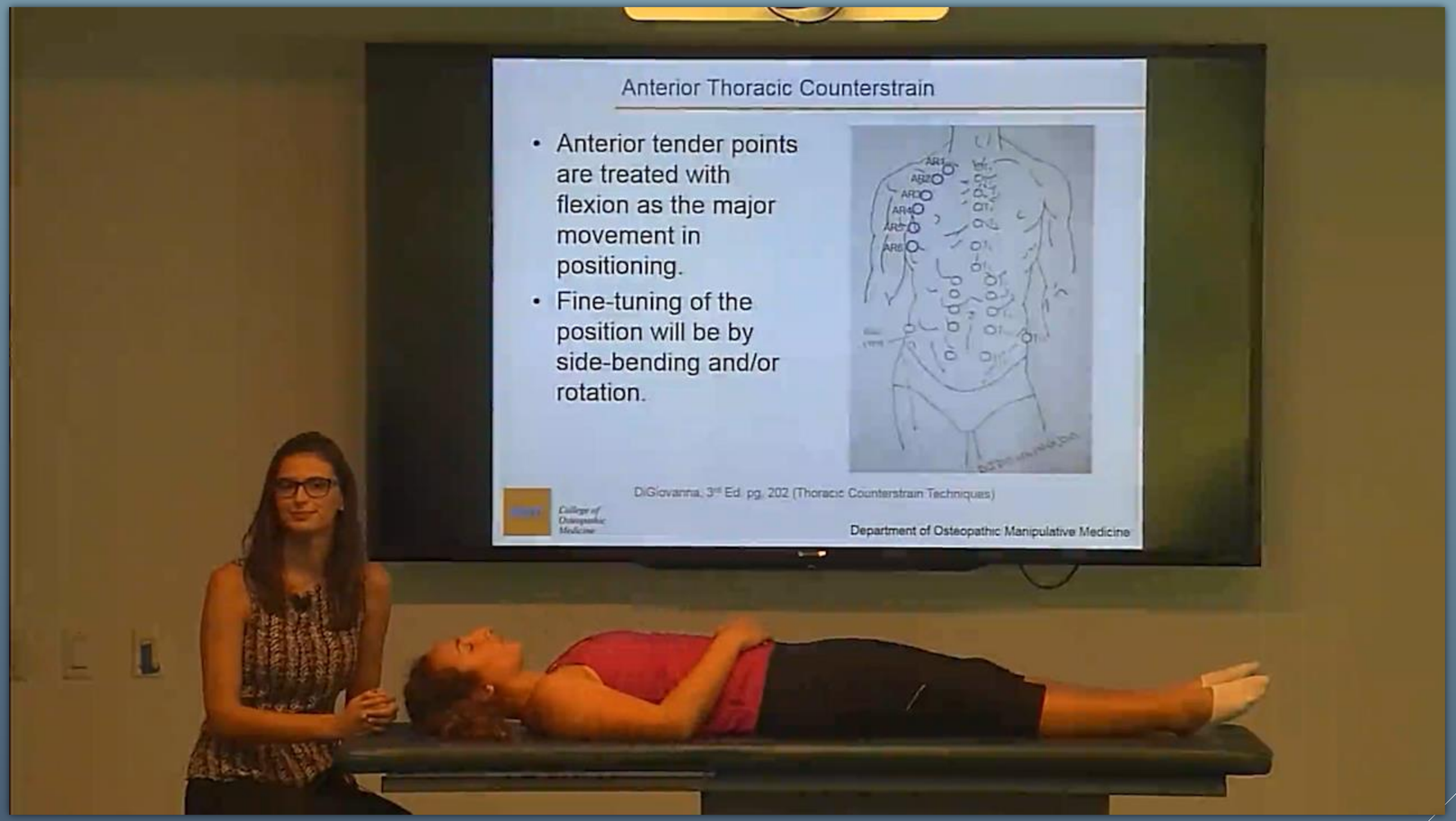


Figure 5

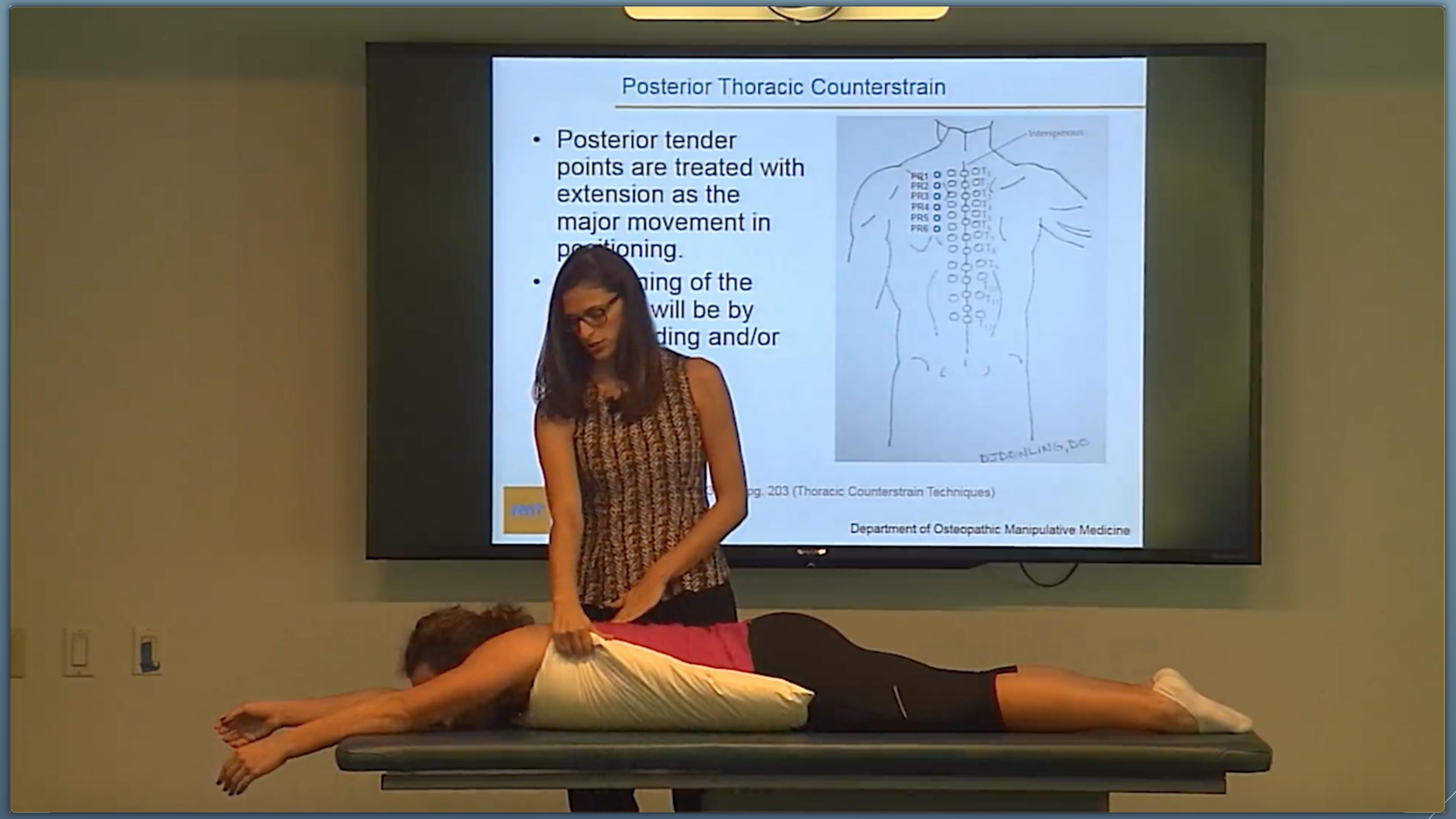
Counterstrain Locations

Anterior Thoracic T2 Counterstrain Point



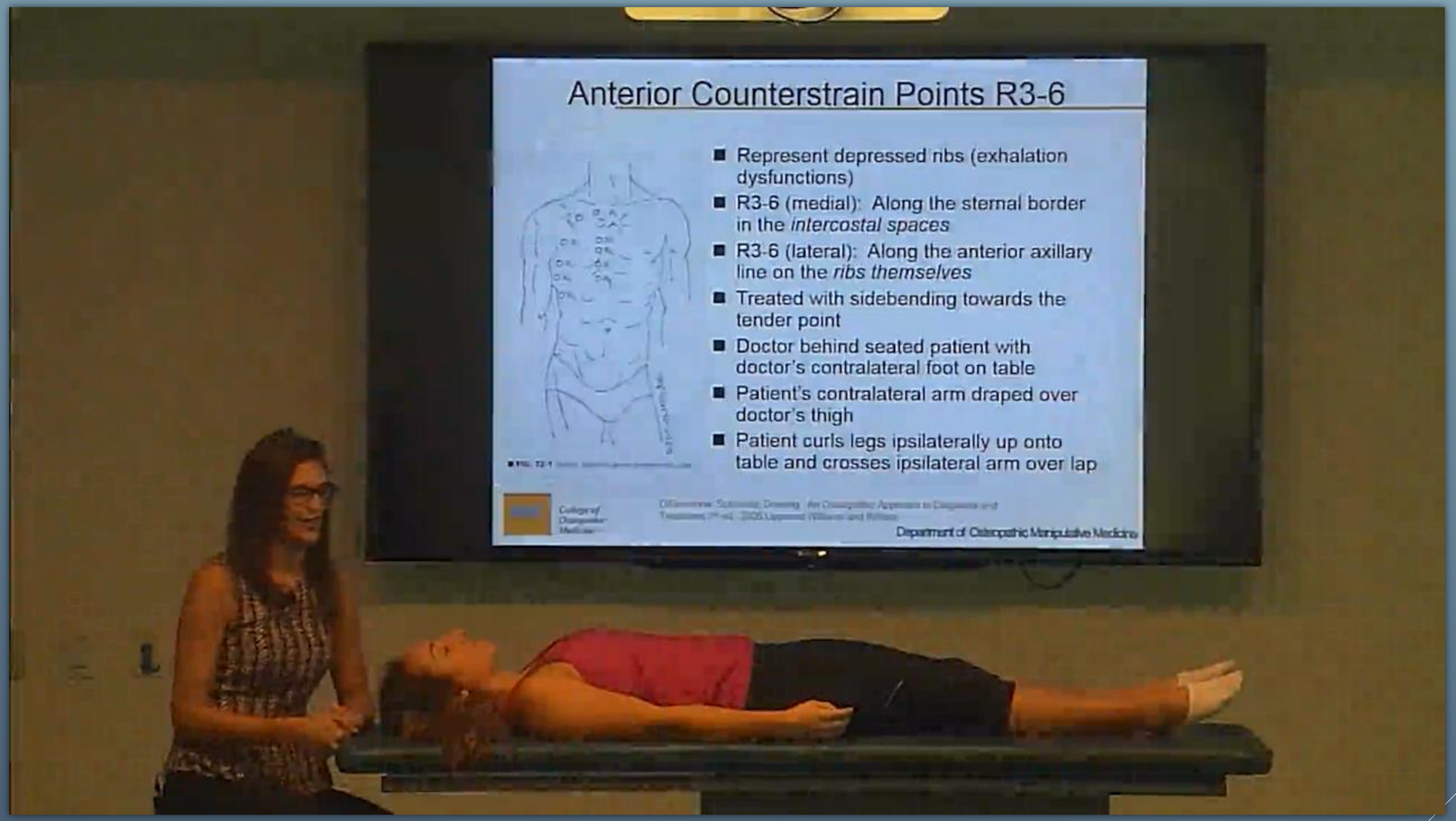
Video 1: Treatment of an Anterior Thoracic CS Point

Posterior Thoracic Transverse Process T8 Counterstrain Point



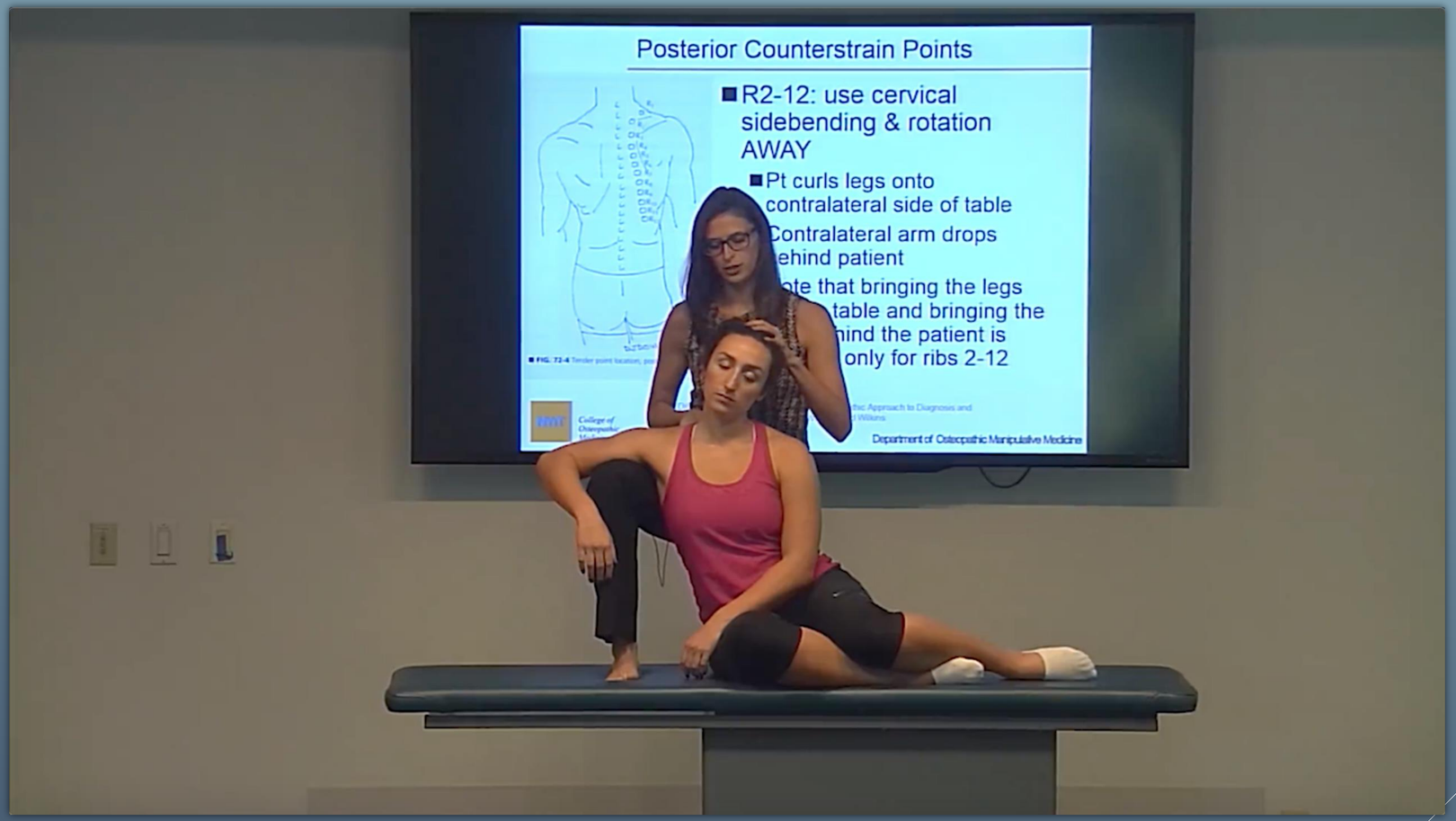
Video 2: Treatment of a Posterior Thoracic CS Point

Anterior Rib R1 Counterstrain Point



Video 3: Treatment of an Anterior Rib CS Point

Posterior Rib 6 Counterstrain Point



Video 4: Treatment of a Posterior Rib CS Point

Final Post-Treatment Pain

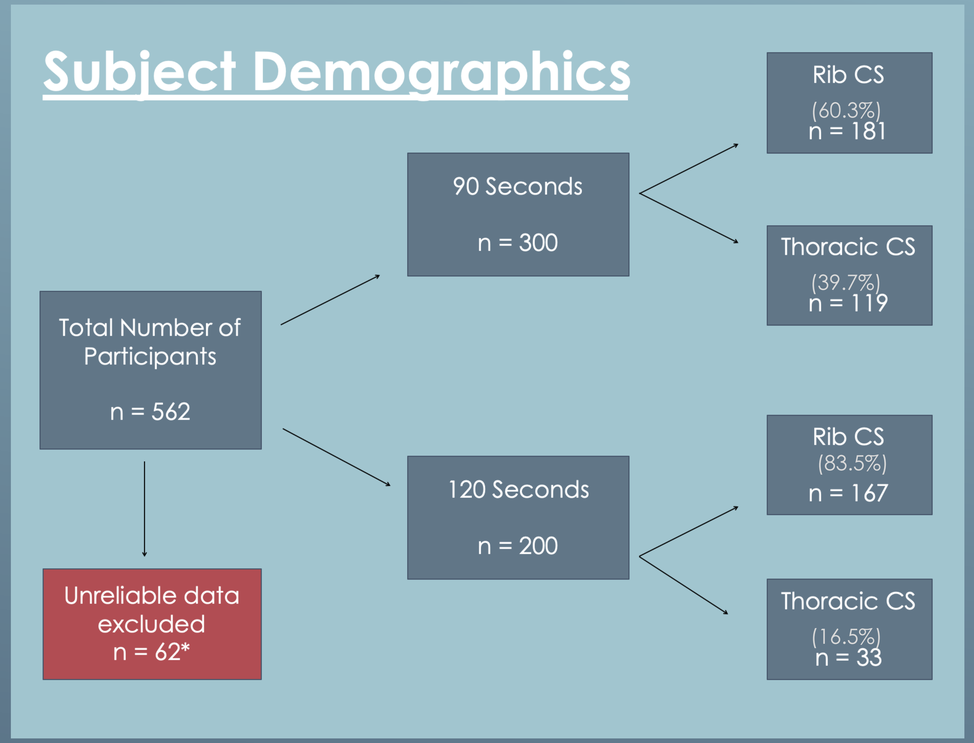
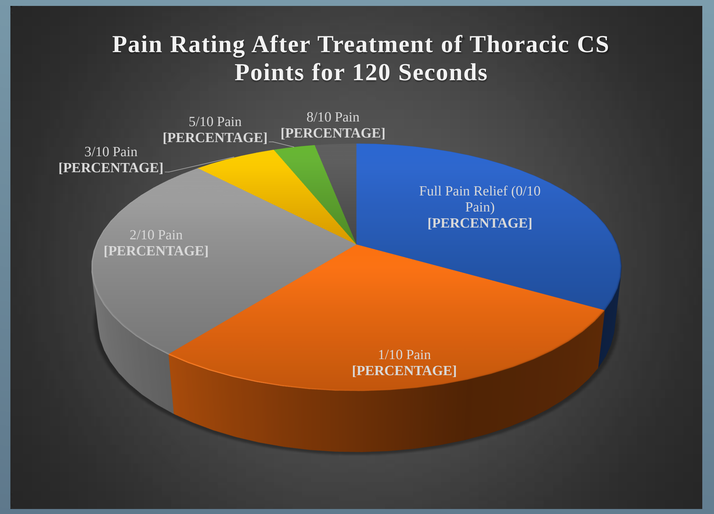
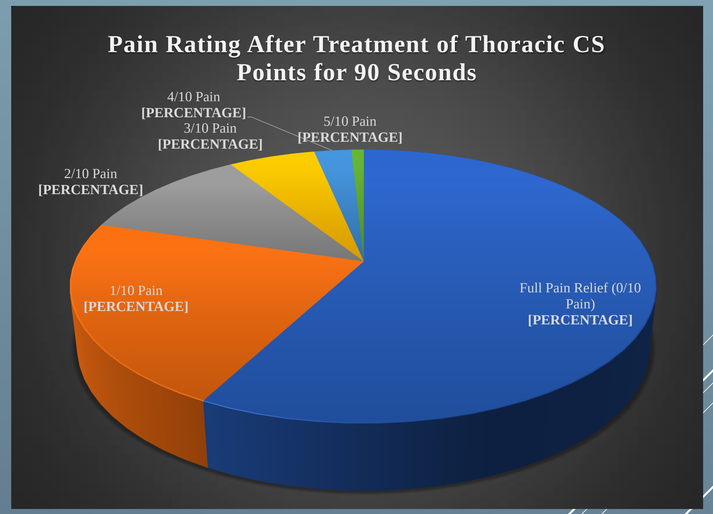
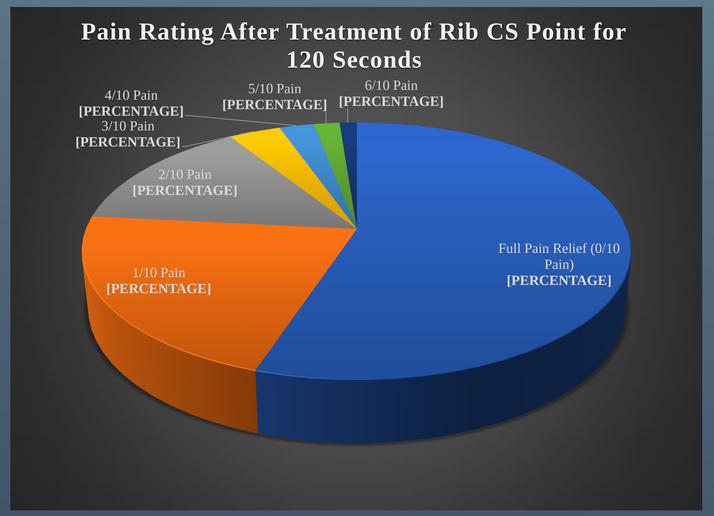


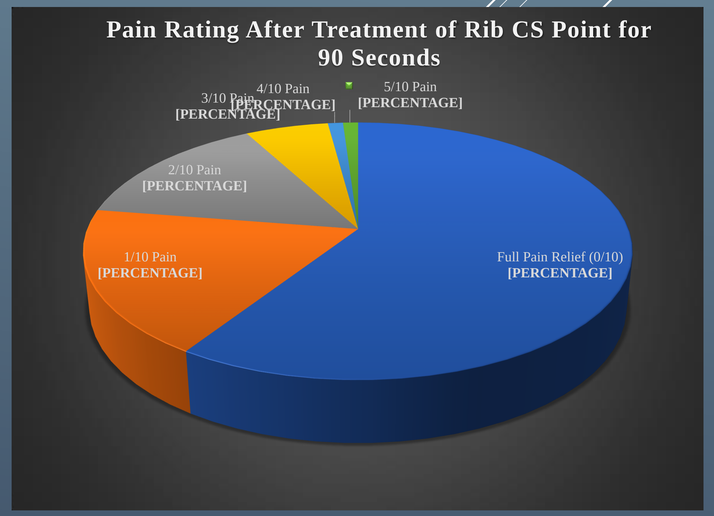
Figure 6: Classification Diagram of Subject Demographics





Figures 7 – 10: Pie Charts of Final Pain Rating for Each CS Region





* To ensure that students were truly in the correct treatment position, they were asked to document the tenderness reached when at the mobile point. Any entries that documented the mobile point with a pain level of 3 or higher were considered to be unreliable. These entries indicated that students were either unable to position the subject properly or they misunderstood the question.

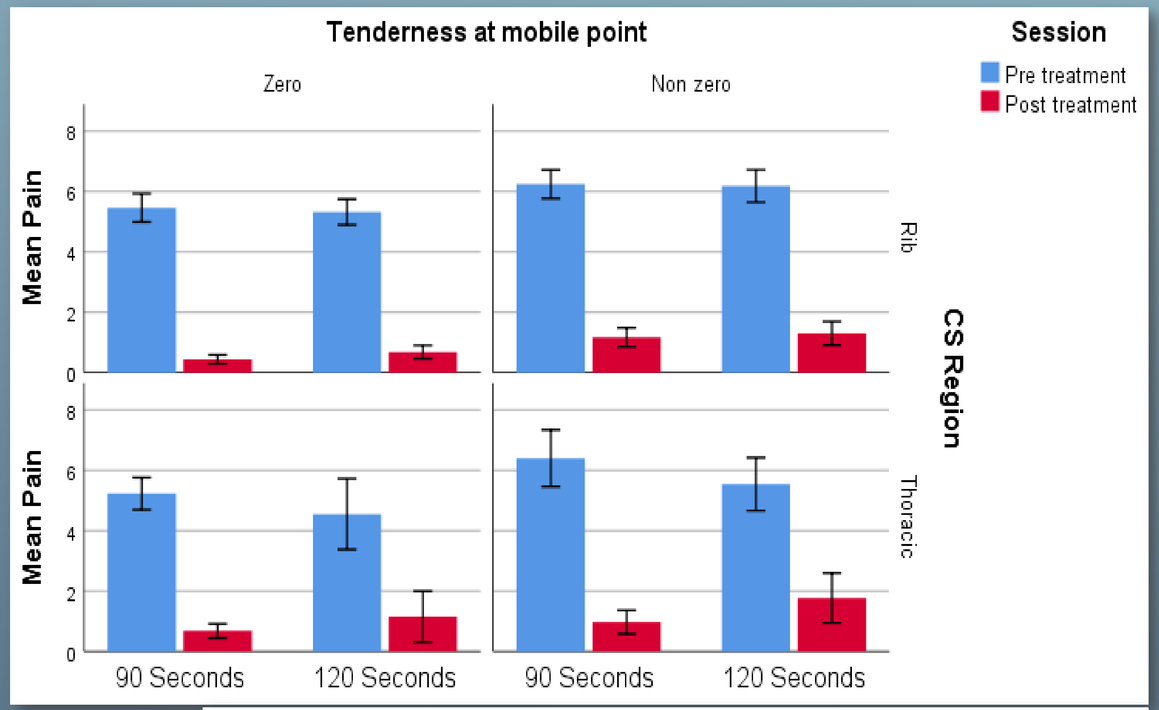


Figure 11: Bar graph of pre- and post- treatment pain scores

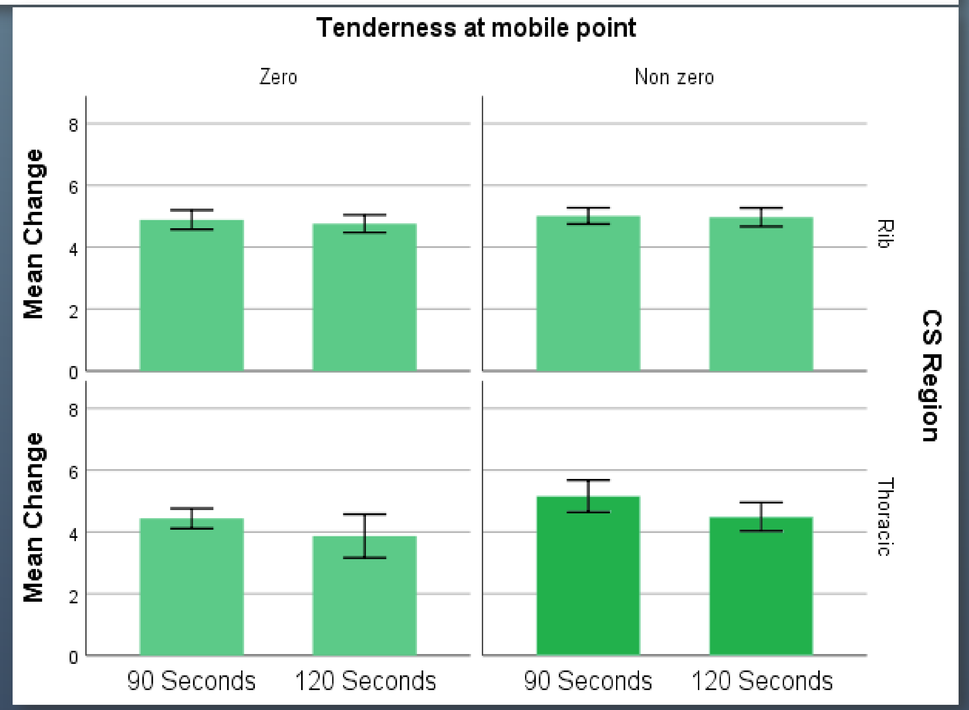


Figure 12: Bar graph of change from pre- to post-treatment pain score

Linear regression to predict change in pain given pre-treatment pain and duration of treatment.		
Rib CS, mobile point tenderness = 0		
Predictors	Unstandardized B (95% CI)	p-value
Pre-treatment pain	0.95 (0.89, 1.00)	<0.001*
Duration	-0.25 (-0.52, 0.01)	0.06
Rib CS, mobile point tenderness > 0		
Predictors	Unstandardized B (95% CI)	p-value
Pre-treatment pain	0.80 (0.68, 0.92)	<0.001*
Duration	-0.15 (-0.62, 0.33)	0.54
Thoracic CS, mobile point tenderness = 0		
Predictors	Unstandardized B (95% CI)	p-value
Pre-treatment pain	0.87 (0.77, 0.96)	<0.001*
Duration	-0.56 (-1.17, 0.04)	0.07
Thoracic CS, mobile point tenderness > 0		
Predictors	Unstandardized B (95% CI)	p-value
Pre-treatment pain	0.78 (0.64, 0.91)	<0.001*
Duration	-0.99 (-1.71, -0.27)	0.008*

Table 1: Linear regression model