Chiropractic manipulation results in little or no risk of chest injury

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Dynamic chest compression occurs during spinal manipulation. While dynamic chest compression has been well studied in events such as motor vehicle collisions, chest compression forces have not been studied during chiropractic manipulation. In a study published online today in the *Journal of Manipulative and Physiological Therapeutics*, researchers quantified and analyzed the magnitude of chest compressions during typical as well as maximum chiropractic manipulation and have found them to be well under the threshold for injury.

"Results from this preliminary study showed that maximum chest compression during chiropractic manipulation of the thoracic spine is unlikely to result in injury," according to lead investigator Brian D. Stemper, PhD, Associate Professor, Department of Neurosurgery, Medical College of Wisconsin, Milwaukee, WI. "We performed this study to get a better understanding of the force limits of chiropractic manipulation. This information may lead to safer manipulation procedures and help to decrease the possibility of adverse patient outcomes."

In the first part of the study Professor Stemper and his co-investigators worked with two practicing doctors of chiropractic, each with a minimum of 4 years of doctoral training and at least 7 years of healthcare experience. Using a crash test dummy they measured the level of chest compression induced during "normal" chiropractic manipulation and during spinal manipulations wherein the doctors of chiropractic exerted maximum effort. They performed simulated chiropractic

manipulations on the test dummy at the midback level (T7 to T8 vertebrae).

In the second part of the study, an instrumented mechanical device was used to apply and measure the forces necessary to induce chest compression in the test dummy. These forces were increased until injurious levels of force were reached. The likelihood of injury was assessed and classified using the Abbreviated Injury Scale (AIS), which is a useful classification system that has been correlated to injury thresholds during biomechanical experimentation.

In the present study, manipulations incorporating typical and maximum efforts by the doctors of chiropractic resulted in maximum chest compressions corresponding to minimal risk of AIS 1 level injuries.

As with all types of patient care, Professor Stemper cautions that "individual patient characteristics including age, degeneration, and gender" should be taken into consideration during treatment such as chiropractic manipulation.

More information: The article is "An Experimental Study of Chest Compression During Chiropractic Manipulation of the Thoracic Spine Using an Anthropomorphic Test Device" by Brian D. Stemper, PhD, Jason J. Hallman, PhD, and Boyd M. Peterson, DC. It will appear in the Journal of Manipulative and Physiological Therapeutics, Volume 34, Issue 5 (June 2011), DOI 10.1016/j.jmpt.2011.04.001

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