New Study of Bone Movement Favors Impulse® Among Adjusting Instruments

August 1, 2006

PHOENIX, Arizona – A new study published in the July/August, 2006 issue of the *Journal of Manipulative and Physiological Therapeutics* reported nearly three-fold greater vertebral motions during chiropractic adjustments delivered with the Impulse Adjusting Instrument® when compared to other chiropractic adjusting instruments. The study, conducted in Adelaide, Australia at the *Institute for Medical and Veterinary Science,* is the first to validate just how vertebrae move during different instrument-delivered chiropractic adjustments.

"We compared three commonly used chiropractic adjusting devices, the *Activator® IV Adjusting Instrument* (Activator Methods International, Ltd., Phoenix, AZ), the *Chiropractic Adjusting Tool* (CAT®, J-Tech Medical Industries, Inc., Salt Lake City, UT), and the *Impulse Adjusting Instrument®* (Neuromechanical Innovations, LLC, Phoenix, AZ) to see how the spine would move during each of their force settings, said Dr. Tony Keller, the study's lead author. "We measured substantially larger magnitude vertebral motion responses for thrusts delivered with the Impulse Adjusting Instrument® at most force settings and always at the high force setting," added Keller, Director of the *Musculoskeletal Research Laboratory*, a Division of the *Florida Orthopaedic Institute* in Tampa, FL.

"Simply put, this study validated just how important forces, speeds and frequencies are in creating bone movements," said Dr. Chris Colloca, a co-inventor of the Impulse Adjusting Instrument® and co-author of the study. The study corroborates previous research that reported a broader range of forces and a superior frequency area ratio among electromechanical adjusting instruments over traditional spring-loaded activation devices specifically favoring the Impulse Adjusting Instrument®. "We now have the data that shows that the bones can move up to three-times more with Impulse®," noted Colloca. "Patients don't ask 'if that thing did anything' anymore after being adjusted with the Impulse® instrument like they used to after being adjusted by the spring-loaded activation devices. The greater amount of bone movement occurring as shown in this study may just be the reason why, stated Dr. Deed Harrison, a chiropractic practitioner/researcher from Elko, NV who also co-authored the paper.

"Impulse also improves over the previous generation spring-loaded adjusting instruments by offering a greater range of forces." Less force is required to adjust cervical vertebrae, whereas more force is required to move lumbar vertebrae because of the inherent stiffness differences in the spine," Colloca added. In related research, the group has found that instrument delivered thrusts can rival the amount of intersegmental vertebral movement occurring during traditional manually delivered adjustments. "The slower speeds of manual type thrusts cause the whole spine to move more as opposed to just the motion segment that the chiropractor is targeting," said Dr. Keller. "One of the benefits of instrument delivered adjustments are their specificity in targeting the motions on the vertebrae desired by the treating clinician. In other words, instrument delivered thrusts move the target vertebrae intersegmentally just as much, if not more than most manually delivered thrusts," noted Keller.

Prior to being published in the JMPT, this research was presented at the Chiropractic Research Agenda Conference last year in Washington, D.C. The research represents a rare multi-disciplinary collaboration at the in affiliation with the *Adelaide Center for Spinal Research* (Adelaide, South Australia) combining talents from chiropractic (Colloca and Harrison) and bioengineering (Keller) with experts in orthopaedic surgery and pathology with co-authors Robert Gunzburg, M.D., Ph.D., and Robert Moore, Ph.D. The research team has combined on a number of studies published in a variety of scientific journals including the *Chiropractic & Osteopathy, European Spine Journal*, *Journal of Biomechanics, Journal of Manipulative and Physiological Therapeutics,* and *Spine* among others. This research was supported by *Chiropractic Biophysics Non-profit, Inc.*, through generous grants from its members and its largest individual supporter, Dr. William Harris' *Foundation for the Advancement of Chiropractic Education*.

The Impulse Adjusting Instrument® is used by thousands of chiropractors around the world. To locate a doctor who uses Impulse® visit www.instrumentadjusting.com. For more information on the Impulse Adjusting Instrument® visit www.neuromechanical.com or call 480-785-8442.