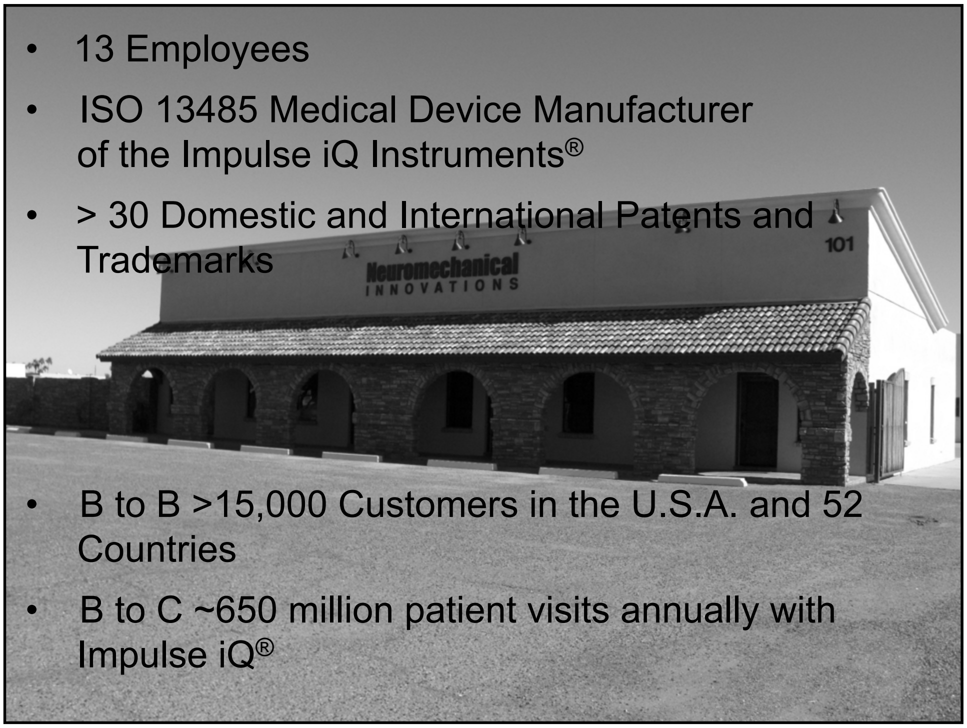

NEUROMECHANICAL INNOVATIONS
iQ impulse
ImpulseAdjusting
SYSTEM®
Dexterville, NY, USA
Dr. Chris Colloca
CEO and Founder
Neuromechanical Innovations
www.neuromechanical.com

1


Over
50
Published
Scientific
Journal
Articles
THE NEUROMECHANICAL ADJUSTMENT
"In God We Trust, All Others Bring Data"
"100x faster than manual adjustments and twice as fast as any other instrument"
Colloca et al, J Manipulative & Physiological Therapeutics, 2005
"Creates the same (if not more) intersegmental bone movement as manual adjustments."
Colloca et al, Clinical Biomechanics, 2006
"Multiple-Impulse thrust characteristics enhance mobility over single thrusts."
Keller et al, Chiropractic and Osteopathy,
"Thrusts at the resonant frequency create more spinal motion with less force."
Keller & Colloca, J Biomechanics, 2007
"EMG and nerve responses are related to thrust speed and frequency."
Colloca et al, J Electromyography & Kinesiology, 2008
"A validated non-invasive dynamic spinal stiffness assessment methodology."
Colloca et al, Spine, 2009

2


• 13 Employees
• ISO 13485 Medical Device Manufacturer of the Impulse iQ Instruments®
• > 30 Domestic and International Patents and Trademarks
Neuromechanical
INNOVATIONS
101
• B to B >15,000 Customers in the U.S.A. and 52 Countries
• B to C ~650 million patient visits annually with Impulse iQ®

3


iQ

4

5

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 13485: 2003

This is to certify that:

Neuromechanical Innovations
101 S. Roosevelt Avenue
Chandler
Arizona
85226
USA

Holds Certificate No: **FM 555350**

and operates a Quality Management System which complies with the requirements of ISO 13485: 2003 for the following scope:

Design and development, manufacture, and distribution of spinal manipulation and mobilization devices.

For and on behalf of BSI:

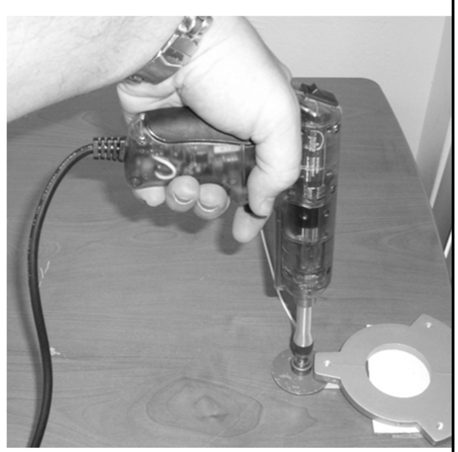
President, BSI America, Inc.

Originally Registered: **06/10/2010** Effective Date: **06/10/2010** Expiry Date: **06/09/2013**

CMDCAS Recognized Registrar

Page: 1 of 1

This certificate remains the property of BSI and shall be returned immediately upon request.
An electronic certificate can be authenticated online. Printed copies can be validated at www.bsigroup.com/ClientDirectory
To be read in conjunction with the scope above or the attached appendix.
Americas Headquarters: 12110 Sunset Hills Road, Suite 200, Reston, VA 20190, USA.



6


IEC IECEE CB SCHEME

Ref. Certif. No.
US/14348/UL

IEC SYSTEM FOR CONFORMITY TESTING AND CERTIFICATION OF ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ESSAIS DE CONFORMITE ET DE CERTIFICATION DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product *Produit*	Impulse Adjustment Instrument
Name and address of the applicant *Nom et adresse du demandeur*	NEUROMECHANICAL INNOVATIONS 101 S ROOSEVELT AVE CHANDLER AZ 85226, USA
Name and address of the manufacturer *Nom et adresse du fabricant*	NEUROMECHANICAL INNOVATIONS 101 S ROOSEVELT AVE CHANDLER AZ 85226, USA
Name and address of the factory *Nom et adresse de l'usine*	NEUROMECHANICAL INNOVATIONS 101 S ROOSEVELT AVE CHANDLER AZ 85226, USA
Rating and principal characteristics *Valeurs nominales et caractéristiques principales*	International Version: 90-240 V~, 50-60 Hz, 4 A North American Version: 90-120 V~, 50-60 Hz, 4 A
Trademark (if any) *Marque de fabrique (si elle existe)*	Not applicable
Model / Type Ref. *Ref. de type*	Impulse and Impulse iQ
Additional information (if necessary) *Information complémentaire (si nécessaire)*	This CB Test Report comprises 8 enclosures.
A sample of the product was tested and found to be in conformity with *Un échantillon de ce produit a été essayé et a été considéré conforme à la*	PUBLICATION **IEC 60601-1 (1988) Second Edition, with Amendment No. 1 (1991) and No. 2 (1995)** with the exception of: Clause 36, Electromagnetic Compatibility, Clause 48, Biocompatibility and Clause 52.1, Programmable Electronic Systems. Inclusive of CENELEC Common Modifications. See Test Report for National Differences
as shown in the Test Report Ref. No. which forms part of this Certificate *comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat*	E320749-A1-CB-1

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

Underwriters Laboratories

Underwriters Laboratories Inc. / GMA Certification Department, US
333 Pfingsten Road, Northbrook, IL 60062-2096
United States of America
TEL INT* +1 847 664 3008, FAX INT* +1 847 313 3008
email: jolanta.m.wroblewska@us.ul.com

Date: Issued: 2009 October 9

Signature: Jolanta M. Wroblewska

Issued 06-2009

UL LISTED


U.S. Food and Drug Administration
Protecting and Promoting Your Health

Establishment Registration & Device Listing


Medical Device Licence
Homologation d'un instrument médical

Health Canada


Certificate

Full Quality Assurance


Australian Government
Department of Health and Ageing
Therapeutic Goods Administration

Australian Register of Therapeutic Goods Certificate

Issued to

Emergo Asia Pacific Pty Ltd T/a Emergo Australia

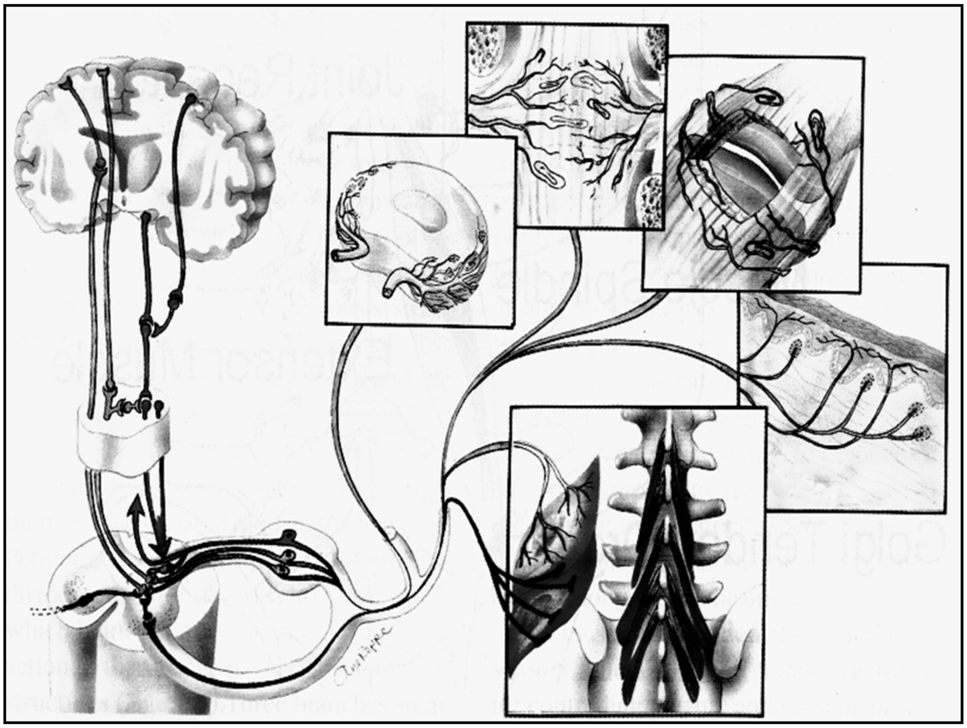
for approval to supply

Emergo Asia Pacific Pty Ltd T/a Emergo Australia - Joint/spinal manipulator, line-powered

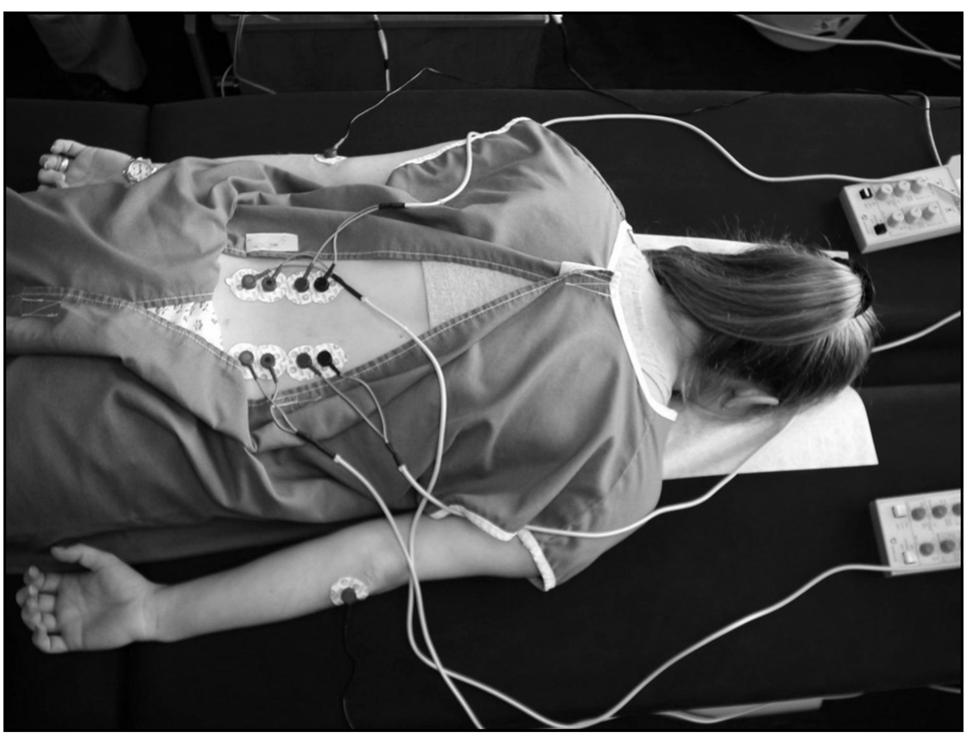
ARTG Identifier	196680 Class IIa
ARTG Start date	16/04/2012
Product Category:	Medical Device Included Class IIa
GMDN	58785
GMDN Term	Joint/spinal manipulator, line-powered
Intended Purpose	Intended for adjustment, mobilization, or manipulation of the musculoskeletal joints of the spine and/or extremities, or for soft-tissue musculoskeletal mobilization by a licensed health care professional only.

Manufacturer Details	Address	Certificate number(s)
Neuromechanical Innovations	101 S Roosevelt Avenue Chandler, AZ, 85226 United States Of America	DV-2012-MC-00363-3

Australian Government
Department of Health and Ageing
Therapeutic Goods Administration



9



10

11

SPINE Volume 26, Number 10, pp 1117–1124
©2001, Lippincott Williams & Wilkins, Inc.

Electromyographic Reflex Responses to Mechanical Force, Manually Assisted Spinal Manipulative Therapy

Christopher J. Colloca, DC,* and Tony S. Keller, PhD†

Study Design. Surface electromyographic reflex responses associated with mechanical force, manually assisted (MFMA) spinal manipulative therapy were analyzed in this prospective clinical investigation of 20 consecutive patients with low back pain.

Objectives. To characterize and determine the magnitude of electromyographic reflex responses in human paraspinal muscles during high loading rate mechanical force, manually assisted spinal manipulative therapy of the thoracolumbar spine and sacroiliac joints.

Summary of Background Data. Spinal manipulative therapy has been investigated for its effectiveness in the treatment of patients with low back pain, but its physiologic mechanisms are not well understood. Noteworthy is the fact that spinal manipulative therapy has been demonstrated to produce consistent reflex responses in the back musculature; however, no study has examined the extent of reflex responses in patients with low back pain.

Methods. Twenty patients (10 male and 10 female, mean age 43.0 years) underwent standard physical examination on presentation to an outpatient chiropractic clinic. After repeated isometric trunk extension strength tests, short duration (<5 msec), localized posteroanterior manipulative thrusts were delivered to the sacroiliac joints, and L5, L4, L2, T12, and T8 spinous processes and transverse processes. Surface, linear-enveloped electromyographic (sEMG) recordings were obtained from electrodes located bilaterally over the L5 and L3 erector spinae musculature. Force–time and sEMG time histories were recorded simultaneously to quantify the association between spinal manipulative therapy mechanical and electromyographic response. A total of 1600 sEMG recordings were analyzed from 20 spinal manipulative therapy treatments, and comparisons were made between segmental level, segmental contact point (spinous *vs.* transverse processes), and magnitude of the reflex response (peak–peak [p-p] ratio and relative mean sEMG). Positive sEMG responses were defined as >2.5 p-p baseline sEMG output (>3.5% relative mean sEMG output). SEMG threshold was further assessed for correlation of patient self-reported pain and disability.

Results. Consistent, but relatively localized, reflex responses occurred in response to the localized, brief duration MFMA thrusts delivered to the thoracolumbar spine and SI joints. The time to peak tension (sEMG magnitude) ranged from 50 to 200 msec, and the reflex response times ranged from 2 to 4 msec, the latter consistent with intraspinal conduction times. Overall, the 20 treatments produced systematic and significantly different L5 and L3 sEMG responses, particularly for thrusts delivered to the lumbosacral spine. Thrusts applied over the transverse processes produced more positive sEMG responses (25.4%) in comparison with thrusts applied over the spinous processes (20.6%). Left side thrusts and right side thrusts over the transverse processes elicited positive contralateral L5 and L3 sEMG responses. When the data were examined across both treatment level and electrode site (L5 or L3, L or R), 95% of patients showed positive sEMG response to MFMA thrusts. Patients with frequent to constant low back pain symptoms tended to have a more marked sEMG response in comparison with patients with occasional to intermittent low back pain.

Conclusions. This is the first study demonstrating neuromuscular reflex responses associated with MFMA spinal manipulative therapy in patients with low back pain. Noteworthy was the finding that such mechanical stimulation of both the paraspinal musculature (transverse processes) and spinous processes produced consistent, generally localized sEMG responses. Identification of neuromuscular characteristics, together with a comprehensive assessment of patient clinical status, may provide for clarification of the significance of spinal manipulative therapy in eliciting putative conservative therapeutic benefits in patients with pain of musculoskeletal origin. [Key words: biomechanics, electromyography, low back pain, manipulation-chiropractic, reflex responses, spine-thoracic/lumbar] **Spine 2001;26:1117–1124**

Spinal manipulative therapy (SMT) is a commonly used conservative treatment shown effective in studies of low back pain (LBP) treatment.[1,19,31,32] Although beneficial effects of SMT have been observed, considerable controversy exists regarding the precise nature of its therapeutic effects. Anecdotal evidence suggests that neuromuscular reflex responses may have a role in positive benefits derived from SMT, but little work has been done to date investigating physiologic responses.[11]

12

Prize-Winning Papers From the World Federation of Chiropractic 7th Biennial Congress

First Prize

Biomechanical and Neurophysiological Responses to Spinal Manipulation in Patients With Lumbar Radiculopathy

Christopher J. Colloca, DC,[a] Tony S. Keller, PhD,[b] and Robert Gunzburg, MD, PhD[c]

Abstract

Objective: The purpose of this study was to quantify in vivo vertebral motions and neurophysiological responses during spinal manipulation.

Methods: Nine patients undergoing lumbar decompression surgery participated in this study. Spinal manipulative thrusts (SMTs) (~5 ms; 30 N [Sham], 88 N, 117 N, and 150 N [max]) were administered to lumbar spine facet joints (FJs) and spinous processes (SPs) adjacent to an intraosseous pin with an attached triaxial accelerometer and bipolar electrodes cradled around the S1 spinal nerve roots. Peak baseline amplitude compound action potential (CAP) response and peak-peak amplitude axial (AX), posterior-anterior (PA), and medial-lateral (ML) acceleration time and displacement time responses were computed for each SMT. Within-subject statistical analyses of the effects of contact point and force magnitude on vertebral displacements and CAP responses were performed.

Results: SMTs ($\geq$ 88 N) resulted in significantly greater peak-to-peak ML, PA, and AX vertebral displacements compared with sham thrusts ($P < .002$). SMTs delivered to the FJs resulted in approximately 3-fold greater ML motions compared with SPs ($P < .001$). SMTs over the SPs resulted in significantly greater AX displacements compared with SMTs applied to the FJs ($P < .05$). Seventy-five percent of SMTs resulted in positive CAP responses with a mean latency of 12.0 ms. Collectively, the magnitude of the CAP responses was significantly greater for max setting SMTs compared with sham ($P < .01$).

Conclusions: Impulsive SMTs in human subjects were found to stimulate spinal nerve root responses that were temporally related to the onset of vertebral motion. Further work, including examination of the frequency and force duration dependency of SMT, is necessary to elucidate the clinical relevance of enhanced or absent CAP responses in patients. (J Manipulative Physiol Ther 2004;27:1-15)

Key Indexing Terms: *Chiropractic Manipulation; Vertebral Motion; Neurophysiology*

13

Neuromechanical Characterization of in vivo Lumbar Spinal Manipulation. Part I. Vertebral Motion

Tony S. Keller, PhD,[a] Christopher J. Colloca, DC,[b] and Robert Gunzburg, MD, PhD[c]

Abstract

Objective: To quantify in vivo spinal motions and coupling patterns occurring in human subjects in response to mechanical force, manually assisted, short-lever spinal manipulative thrusts (SMTs) applied to varying vertebral contact points and utilizing various excursion (force) settings.

Methods: Triaxial accelerometers were attached to intraosseous pins rigidly fixed to the L1, L3, or L4 lumbar spinous process of 4 patients (2 male, 2 female) undergoing lumbar decompressive surgery. Lumbar spine acceleration responses were recorded during the application of 14 externally applied posteroanterior (PA) impulsive SMTs (4 force settings and 3 contact points) in each of the 4 subjects. Displacement time responses in the PA, axial (AX), and medial-lateral (ML) axes were obtained, as were intervertebral (L3-4) motion responses in 1 subject. Statistical analysis of the effects of facet joint (FJ) contact point and force magnitude on peak-to-peak displacements was performed. Motion coupling between the 3 coordinate axes of the vertebrae was examined using a least squares linear regression.

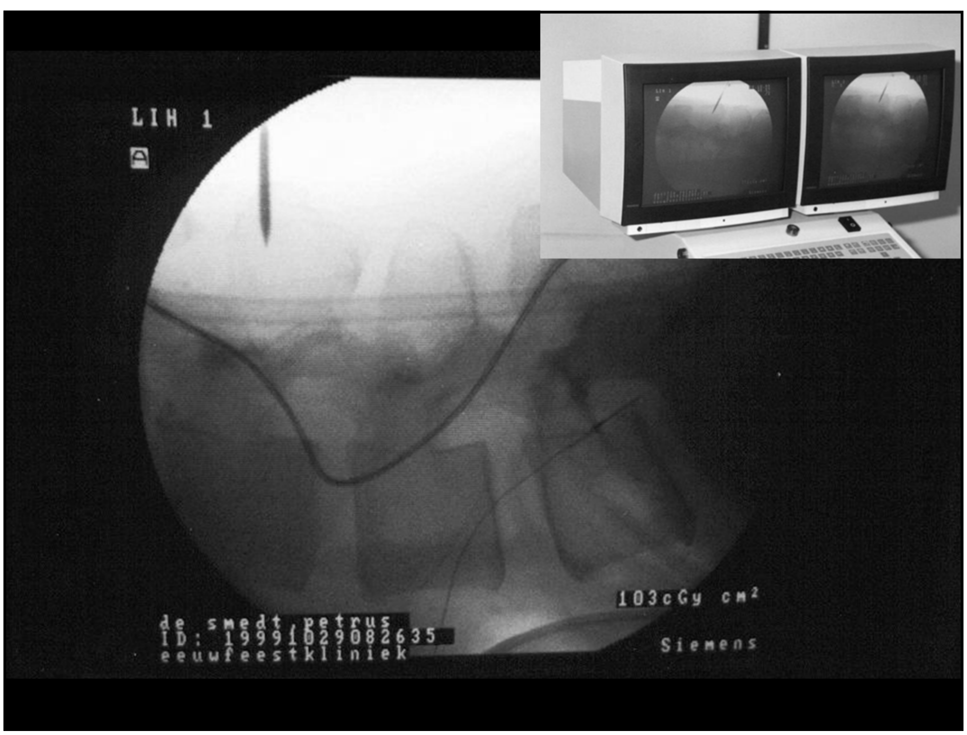
Results: SMT forces ranged from 30 N (lowest setting) to 150 N (maximum setting). Peak-to-peak ML, PA, and AX vertebral displacements increased significantly with increasing applied force. For thrusts delivered over the FJs, pronounced coupling was observed between all axes (AX-ML, AX-PA, PA-ML) (linear regression, $R^2 = 0.35$-0.52, $P < .001$), whereas only the AX and PA axes showed a significant degree of coupling for thrusts delivered to the spinous processes (SPs) (linear regression, $R^2 = 0.82$, $P < .001$). The ML and PA motion responses were significantly ($P < .05$) greater than the AX response for all SMT force settings. PA vertebral displacements decreased significantly ($P < .05$) when the FJ contact point was caudal to the pin compared with FJ contact cranial to the pin. FJ contact at the level of the pin produced significantly greater ML vertebral displacements in comparison with contact above and below the pin. SMTs over the spinous processes produced significantly ($P < .05$) greater PA and AX displacements in comparison with ML displacements. The combined ML, PA, and AX peak-to-peak displacements for the 4 force settings and 2 contact points ranged from 0.15 to 0.66 mm, 0.15 to 0.81 mm, and 0.07 to 0.45 mm, respectively. Intervertebral motions were of similar amplitude as the vertebral motions.

Conclusions: In vivo kinematic measurements of the lumbar spine during the application of SMTs over the FJs and SPs corroborate previous spinous process measurements in human subjects. Our findings demonstrate that PA, ML, and AX spinal motions are coupled and dependent on applied force and contact point. (J Manipulative Physiol Ther 2003;26:567-78)

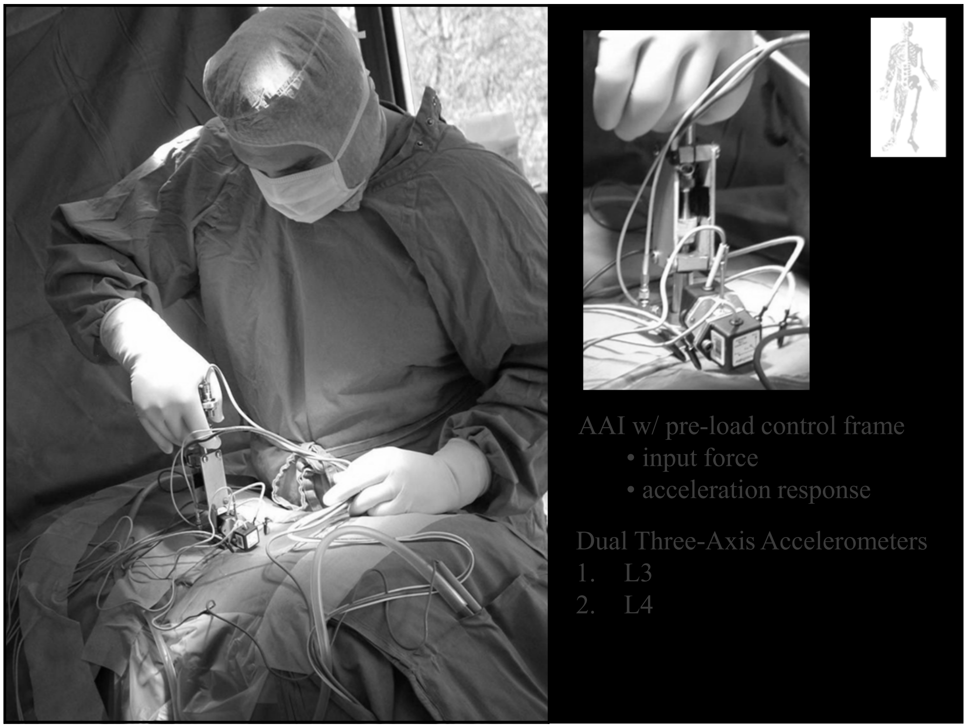
Key Indexing Terms: *Acceleration; Biomechanics; Chiropractic; Kinematics; Lumbar Spine; Manipulation*

14

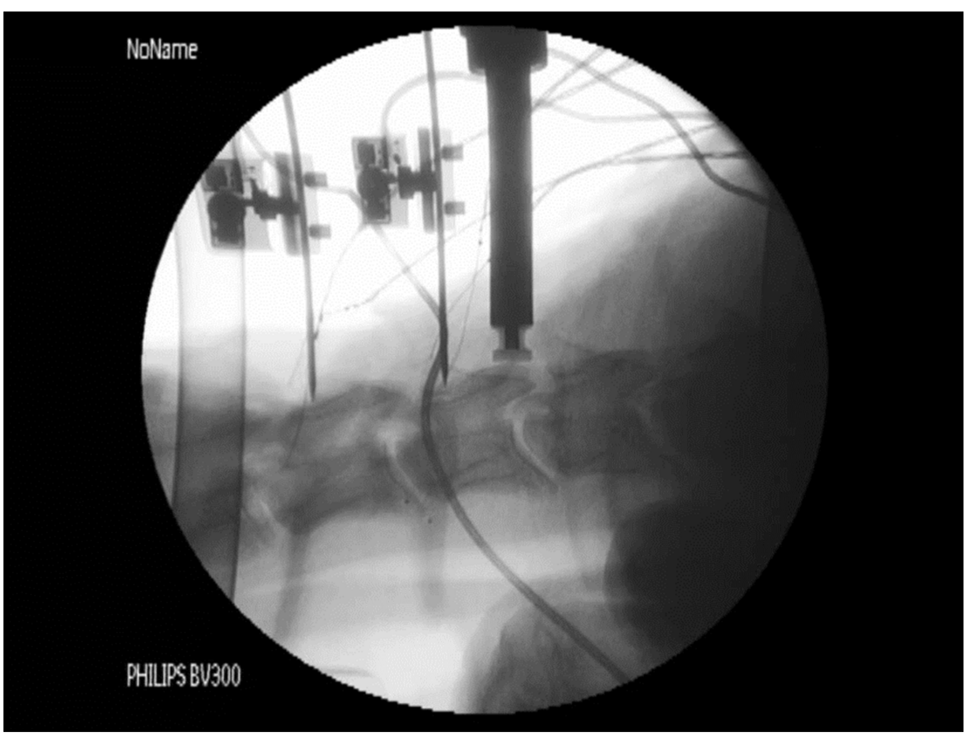
15


LIH 1
103cGy cm²
de smedt petrus
ID: 19991029082635
eeuwfeestkliniek
Siemens

16


AAI w/ pre-load control frame
• input force
• acceleration response
Dual Three-Axis Accelerometers
1. L3
2. L4

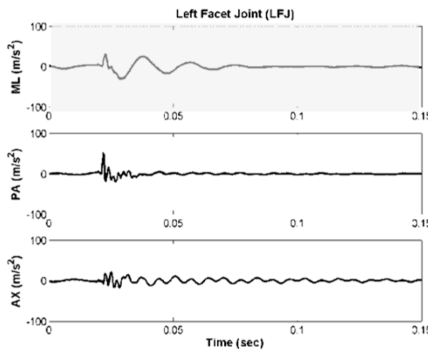
17


NoName
PHILIPS BV300

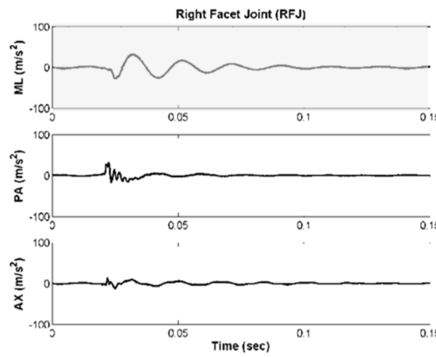
18

In Vivo Human Trials Tri-axial Accelerometer Measurements

Application to Left Facet



Application to Right Facet



19

ELSEVIER

Clinical Biomechanics 17 (2002) 185–196

CLINICAL BIOMECHANICS

www.elsevier.com/locate/clinbiomech

Force-deformation response of the lumbar spine: a sagittal plane model of posteroanterior manipulation and mobilization

Tony S. Keller [a,*], Christopher J. Colloca [b], Jean-Guy Béliveau [c]

[a] *Department of Mechanical Engineering, Department of Orthopaedics and Rehabilitation, University of Vermont, 119C Votey Building, Burlington 05405-0156, Vermont, USA*

[b] *Postgraduate and Continuing Education Department Faculty, New York Chiropractic College, Seneca Falls, New York, USA, State of the Art Chiropractic Center, P.C., Phoenix, AZ, USA*

[c] *Department of Civil and Environmental Engineering, University of Vermont, Burlington, Vermont, USA*

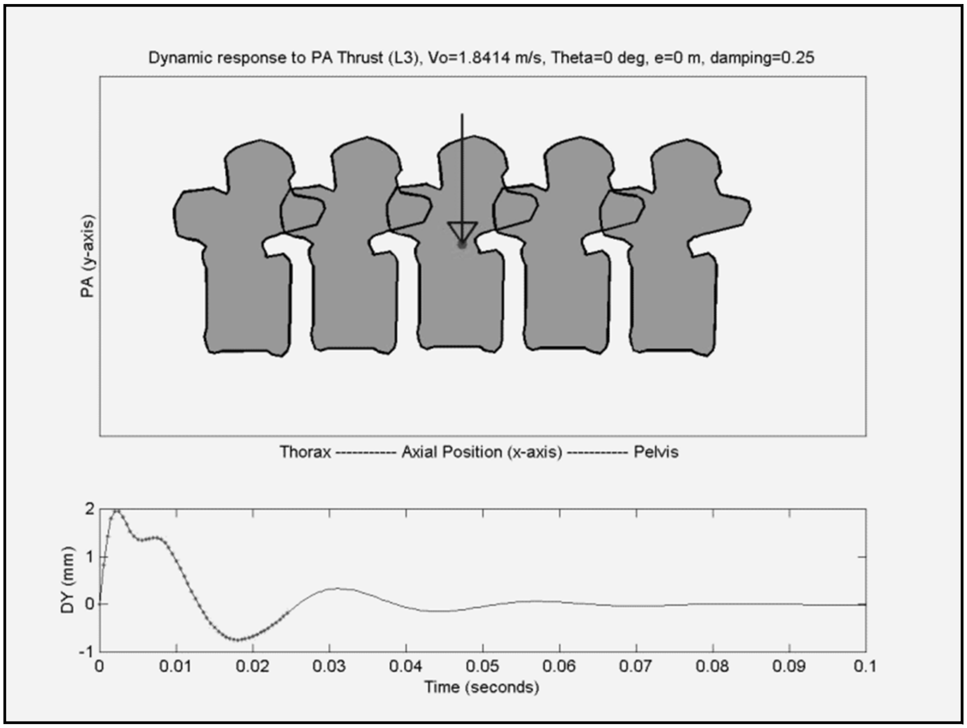
Received 9 January 2001; accepted 10 January 2001

Relevance

This study assists clinicians to understand the biomechanics of posteroanterior forces applied to the lumbar spine of prone-lying subjects. Of particular clinical relevance is the finding that greater spinal mobility is possible by targeting specific load-time histories.

Keywords: Biomechanics; Dynamic simulation; Lumbar spine; Manipulation; Model; Natural frequency; Rigid body; Spine; Vibration

20


Dynamic response to PA Thrust (L3), Vo=1.8414 m/s, Theta=0 deg, e=0 m, damping=0.25
PA (y-axis)
Thorax ----------- Axial Position (x-axis) ----------- Pelvis
DY (mm)
2
1
0
-1
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
Time (seconds)

21

22

23

Chiropractic & Osteopathy

BioMed Central

Research

Open Access

Increased multiaxial lumbar motion responses during multiple-impulse mechanical force manually assisted spinal manipulation

Tony S Keller[1], Christopher J Colloca*[2], Robert J Moore[3], Robert Gunzburg[4] and Deed E Harrison[5]

Address: [1]Director of Research, Florida Orthopaedic Institute, Tampa, Florida, USA, [2]Master's Candidate, Department Of Kinesiology, Biomechanics Laboratory, Exercise and Sport Science Research Institute, Arizona State University, Tempe, Arizona, USA; Clinic Director, State Of The Art Chiropractic Center, Phoenix, Arizona, USA, [3]Head, The Adelaide Centre For Spinal Research, Institute Of Medical And Veterinary Science, Adelaide, South Australia, [4]Senior Consultant, Department Of Orthopaedic Surgery, Eeuwfeestkliniek Hospital, Antwerpen, Belgium and [5]Vice President, Chiropractic Biophysics Non-profit, Inc., Evanston, Wyoming, USA; Clinic Director, Ruby Mountain Chiropractic Center, Elko, Nevada, USA

Email: Tony S Keller - keller@cems.uvm.edu; Christopher J Colloca* - DrC100@aol.com; Robert J Moore - rob.moore@imvs.sa.gov.au; Robert Gunzburg - robert@gunzburg.be; Deed E Harrison - drdeed@idealspine.com

* Corresponding author

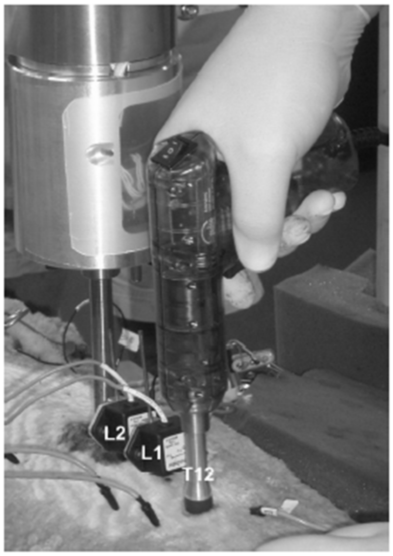
Published: 06 April 2006

Chiropractic & Osteopathy 2006, **14**:6 doi:10.1186/1746-1340-14-6

Received: 01 November 2005
Accepted: 06 April 2006

This article is available from: http://www.chiroandosteo.com/content/14/1/6

24



Methods: Fifteen adolescent Merino sheep were examined. Tri-axial accelerometers were attached to intraosseous pins rigidly fixed to the L1 and L2 lumbar spinous processes under fluoroscopic guidance while the animals were anesthetized. A hand-held electromechanical chiropractic adjusting instrument (Impulse) was used to apply single and repeated force impulses (13 total over a 2.5 second time interval) at three different force settings (low, medium, and high) along the posteroanterior axis of the T12 spinous process. Axial (AX), posteroanterior (PA), and medial-lateral (ML) acceleration responses in adjacent segments (L1, L2) were recorded at a rate of 5000 samples per second. Peak-peak segmental accelerations (L1, L2) and intersegmental acceleration transfer (L1–L2) for each axis and each force setting were computed from the acceleration-time recordings. The initial acceleration response for a single thrust and the maximum acceleration response observed during the 12 multiple impulse trains were compared using a paired observations t-test (POTT, alpha = .05).

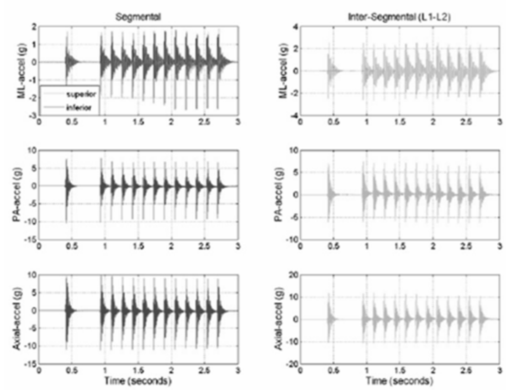
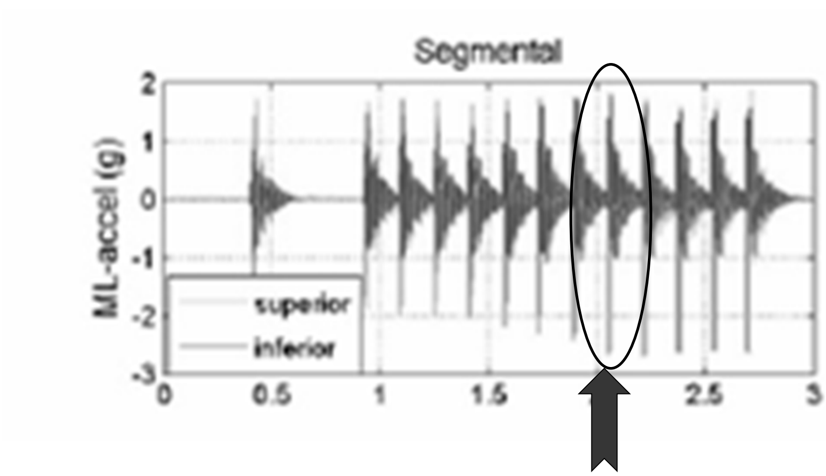


Figure 1
Experimental setup illustrating the Impulse Adjusting Instrument® positioned over the T12 spinous process and the two triaxial accelerometers rigidly attached to stainless steel pins at L1 and L2.

25



Motion maximized

26

27

28

29

SPINE Volume 34, Number 18, pp 1900–1905
©2009, Lippincott Williams & Wilkins

Validation of a Noninvasive Dynamic Spinal Stiffness Assessment Methodology in an Animal Model of Intervertebral Disc Degeneration

Christopher J. Colloca, DC,* Tony S. Keller, PhD,† Robert J. Moore, PhD,‡
Deed E. Harrison, DC,§ and Robert Gunzburg, MD, PhD¶

Study Design. An experimental *in vivo* ovine model of intervertebral disc degeneration was used to quantify the dynamic motion response of the lumbar spine.

Objective. The purpose of this study was to: (1) compare invasively measured lumbar vertebral bone acceleration responses to noninvasive displacement responses, and (2) determine the effects of a single level degenerative intervertebral disc lesion on these responses.

Summary of Background Data. Biomechanical techniques have been established to quantify vertebral motion responses, yet their invasiveness limits their use in a clinical setting.

Methods. Twenty-five Merino sheep were examined; 15 with surgically induced disc degeneration at L1–L2 and 10 controls. Triaxial accelerometers were rigidly fixed to the L1 and L2 spinous processes and dorsoventral (DV) mechanical excitation (20–80 N, 100 milliseconds) was applied to L3 using a spinal dynamometer. Peak force and displacement and peak-peak acceleration responses were computed for each trial and a least squares regression analysis assessed the correlation between L3 displacement and adjacent (L2) segment acceleration responses. An analysis of covariance (ANCOVA) was performed to test the homogeneity of slopes derived from the regression analysis and to assess the mean differences.

Results. A significant, positive, linear correlation was found between the DV displacement of L3 and the DV acceleration measured at L2 for both normal ($R^2 = 0.482$, $P < 0.001$) and degenerated disc groups ($R^2 = 0.831$, $P < 0.001$). The L3 DV displacement was significantly lower (ANCOVA, $P < 0.001$) for the degenerated group (mean: 10.39 mm) in comparison to the normal group (mean: 9.07 mm). Mean peak-peak L2–L1 DV acceleration transfer was also significantly reduced from 12.40 m/s^2 to 5.50 m/s^2 in the degenerated animal group (ANCOVA, $P < 0.001$).

Conclusion. The findings indicate that noninvasive displacement measurements of the prone-lying animal can be used to estimate the segmental and intersegmental motions in both normal and pathologic spines.

Key words: biomechanics, disc degeneration, lumbar spine, stiffness. **Spine 2009;34:1900–1905**

Knowledge of spine segment, or functional spinal unit (FSU), motion patterns (kinematics), and forces (kinetics) is of importance in understanding the response of the spine to externally applied loads. Such biomechanical analyses of the spine play an important role in providing objective data to better understand the biomechanical variables involved in spinal disorders and musculoskeletal pain. In principle, a dysfunctional or unstable FSU may exhibit increased displacement or decreased stiffness, compared to adjacent segments.[1] Conversely, lower lumbar vertebrae[2,3] or segments with degenerated discs[4,5] display increased stiffness. Consequently, the displacement of the FSU and the resistance of spinal tissues to applied forces during assessments or manual treatments may be potentially very useful in spinal diagnosis and for establishing effective treatment protocols.

Physicians, clinicians, and therapists assess the motion of the human spine in an attempt to assess the functional status of underlying anatomy during physical examination of patients with musculoskeletal pain. Clinicians have used mobilization palpation procedures to manually apply posteroanterior (PA) forces over various spinal segments to assess the perceived tissue resistance and pain provocation.

30

iQ impulse
ADJUSTING INSTRUMENT
Introducing The Impulse iQ Adjusting Instrument®
Following Five Years of Research and Development, Affordable Computer-Assisted Adjusting Has Arrived.
Embedded within Impulse iQ is a motion sensor and micro-computer
As the adjustment thrust is delivered, the amount of spinal motion
and the fequency of motion are determined in real-time
As the spine rebounds data is fed into the micro-computer
Auto-sense technology sets the frequency of subsequent thrusts
Adjusting ceases automatically when motion is maximizec
Truth | Authenticity | Simplicity | Impulse IQ®

31