

JMPT - Abstracts for January 2001, Volume 24 - Number 1

Editorial Staff

Response of muscle proprioceptors to spinal manipulative-like loads in the anesthetized cat.
Joel G. Pickar, DC, PhD, and John D. Wheeler, DC

Objective: The mechanisms underlying the benefits of spinal manipulation are not well understood. Neurophysiological mechanisms likely mediate its effects, at least in part, yet we know little about how the nervous system is affected by spinal manipulation. The purpose of the present study was to determine if muscle spindles and Golgi tendon organs in paraspinal muscles respond to a mechanical load whose force-time profile is similar to that of a spinal manipulation.

Methods: Experiments were performed on 10 anesthetized adult cats. The L6 dorsal root was isolated for electrophysiological recordings while leaving intact the L6-L7 vertebrae and associated paraspinal tissues on one side of the vertebral column. Single unit recordings were obtained from 5 muscle spindles, 4 GTOs and one presumed pacinian corpuscle afferents with receptive fields in paraspinal muscles. Loads were applied at the spinous process of the L6 vertebra using an electronic feedback control system. The load simulated the force-time profile of a spinal manipulation. Loads were applied in compressive and distractive directions and at 2 different angles (0° and 45°) with respect to the long axis of the vertebral column.

Results: GTO afferent discharge frequency increased more to the impulse than to the preload during 13 of 15 spinal manipulations. Generally, the 4 GTO afferents became silent immediately at the end of each impulse. Similarly, muscle spindle discharge frequency increased more to the impulse than to the preload during 10 of 16 manipulations. Distractive manipulations loaded the spindles more effectively than compressive manipulations. After 7 of these 10 manipulations, muscle spindles became silent for 1.3 - 0.6s (range: 0.1-4.3s). Six of the 16 manipulations unloaded the muscle spindles. A presumed pacinian corpuscle responded to the impulse of a manipulative-like load but not to loads with a slower force-time profile.

Conclusion: The data suggest that the high velocity, short duration load delivered during the impulse of a spinal manipulation can stimulate muscle spindles and Golgi tendon organs more than the preload. The physiologically relevant portion of the manipulation may relate to its ability to increase as well as decrease the discharge of muscle proprioceptors. In addition, the preload, even in the absence of the impulse, can change the discharge of paraspinal muscle spindles. Loading of the vertebral column during a sham manipulation may affect the discharge of paraspinal proprioceptors.

Key Indexing Terms: chiropractic; muscle spindles; Golgi tendon organs.

Objectives: To review current knowledge and recent concepts of the causes of chronic pain and/or dysfunction following whiplash-type injuries. To acquaint those who treat these types of injuries of possible mechanisms of continued pain and or dysfunction following whiplash.

Data Collection: A review of literature involving mechanisms of injury and neurological considerations was undertaken. A hand search of relevant medical, neuroscience, chiropractic and computer Index Medicus sources and other sources involving mechanisms of nociception, neurotransmitters and receptors that may evolve from whiplash-type soft tissue injuries was gathered.

Results: Pain is a complex phenomenon that has great variability. Chronic pain appears to involve a deficient descending inhibitory process and/or an increase in excitatory input.

Conclusions: There is a wide variety on how individuals react to a stimulus. Injury may lead to increases in neuronal activity and prolonged changes in the nervous system. Chronic pain may be seen as part of a central disturbance accompanied by disinhibition or sensitization of central pain modulation, mirrored in the immune and the endocrine systems. Patients suffering from chronic whiplash syndrome may have a generalized central hyperexcitability from a loss of tonic inhibitory input (disinhibition) and/or an increase in excitatory input contributing to dorsal horn hyperexcitability. Dysfunction of the motor system may also occur, with or without pain. Treatment should not only be to relieve pain, but also to allow for proper proprioception.

Key Indexing Terms: inhibition; whiplash injury; chronic pain.

The efficacy of adjusting the ankle in the treatment of subacute and chronic grade I and II ankle inversion sprains.

Justin Edward Pellow, DC and James W. Brantingham, DC

Purpose: To determine the efficacy of adjusting the ankle in the treatment of subacute and chronic grade I and II ankle inversion sprains.

Design: A single-blind, comparative, controlled pilot study.

Setting: Technikon Natal Chiropractic Day Clinic.

Participants: 30 patients with subacute and chronic grade I and II ankle inversion sprains. Patients were recruited from the public who responded to advertisements placed in newspapers and on notice boards around the campus and local sports clubs.

Intervention: 15 patients in the treatment group received the ankle mortise separation adjustment. The other 15 patients in the placebo group received 5 minutes of detuned ultrasound treatment. Both groups received up to a maximum of 8 treatment sessions spread over a period of 4 weeks.

Main Outcome Measure: Patients were evaluated at the first treatment, final treatment, and at a one-month follow-up consultation. Subjective scores were obtained from the McGill Short-form Pain Questionnaire and Numerical Pain Rating Scale 101. Objective measurements were obtained from goniometer readings measuring ankle dorsiflexion range of motion and algometer readings measuring pain threshold over the ankle lateral ligaments. A functional evaluation of ankle function was also used.

Results: Although both groups showed improvement, statistically significant differences, in favour

of the adjustment group, were noted for the reduction in pain, increased ankle range of motion, and ankle function.

Conclusion: This study thus appears to indicate that the mortise separation adjustment may be superior to detuned ultrasound therapy in the management of subacute and chronic grade I and II inversion ankle sprains.

Key Indexing Terms: ankle; inversion sprain; chiropractic.

Communication between General Practitioners and Chiropractors

William J. Brussee, DC, Willem J.J. Assendelft, MD, PhD, and Alan C. Breen, DC, PhD

Objective: Good communication between health care professionals has proven to be important in ensuring high standards of care. Patients have shown an increased use of complementary medicine (e.g., chiropractic) in addition to conventional medicine. However, this does not automatically guarantee good co-operation and communication between complementary practitioners and conventional practitioners. The objective of this study is to assess the nature and quality of communication between general practitioners (GPs) and chiropractors (in the Netherlands) and to look for areas for improvement.

Design and setting: Postal questionnaires were sent to GP's asking for personal and practice details, knowledge of chiropractic, present communication, opinions on chiropractic terminology and preferences of communications with patients.

Subjects: 252 general practitioners in 84 Dutch cities

Results: A total of 115 (46%) questionnaires were returned. Almost all GPs had at least heard of chiropractic. Most information came from patients who were treated by chiropractors (78%). Only 10% of the GPs refer their patients to a chiropractor on a regular basis. Referring patients was found to be significantly related to the GPs' perceived knowledge of chiropractic, and a positive opinion of past communication with chiropractors. More than 80% of the GPs said they were interested in receiving (or continuing to receive) a feedback report, even if they did not personally refer the patient to the chiropractor. Chiropractic feedback reports often seem to contain confusing terminology (40%), which might negatively influenced communication (66%). The GPs preferred a typed (88%), short (695) feedback report, preferably sent after the last treatment (72%).

Conclusions: The results of this study show a neutral to positive attitude of GPs towards communication with chiropractors. The GPs' preferences to the technical aspects of a feedback report concur with similar surveys in the field and can be used as a guideline for written communications. Factors which negatively influence the communication between GPs and chiropractors seem to be confusing terminology, the limited knowledge of chiropractic and bad experiences in communication in the past. Recognition and illumination of these factors is a pre-requisite to developing good communication.

Key Indexing Terms: communication; complementary medicine; cooperation; chiropractic; general practitioners.

Chiropractic Hospitals in America: A Case Study of the Bakkum Hospital (1936-1950).

Barclay Bakkum, DC, PhD, and Bart Green, DC

Objective: To relate the story of the Bakkum Chiropractic Clinic and Hospital and to offer evidence regarding the lost days of chiropractic hospitalization and in-patient care.

Discussion: The number of chiropractic facilities that offered in-patient care peaked in the period between World Wars I and II. Little information is available about the vast majority of these facilities. One of these was the Bakkum Chiropractic Clinic and Hospital in Waukon, Iowa. The proprietor was Roy C. Bakkum, DC, who along with his wife, Jessie H. Bakkum, DC, opened this 30 bed facility in 1936. Patients received "hole-in-one" chiropractic adjustments, rest and nursing care at this facility. Dr. Roy Bakkum not only envisioned chiropractors as true primary caregivers, but implemented that vision to the best of his ability. He saw chiropractic as the main type of health care that the vast majority of people should receive, even as in-patients. Pharmaceutical or surgical intervention would have only been called upon as needed, rather than being the usual and customary hospital care. Mainly because of economic pressures, the facility closed in 1950.

Conclusion: The Bakkum Chiropractic Clinic and Hospital may have been fairly typical of small chiropractic facilities offering in-patient care. The Bakkum Hospital, like many private hospitals of all kinds, closed in the post-World War II period primarily due to economic and political losses. This paper traces the history of one of these facilities in order to add historical context to chiropractors' long struggle to own and operate chiropractic hospitals. Key Indexing Terms: chiropractic; private hospitals; history of medicine

Practice-based research: The Oregon experience.

Joanne Nyiendo, PhD, Carol Lloyd and Mitchell Haas

Background: Practice-based research (PBR) links community-based physicians and their patients with investigators at academic institutions. In 1992, Western States Chiropractic College developed an infrastructure, the Center for Outcomes Studies, to support PBR. The low back pain study, undertaken in collaboration with Oregon Health Sciences University, 111 medical physicians, and 60 chiropractors, relied on the COS infrastructure for support in project implementation and maintenance.

Results: Challenges, many of them critical, were a regular occurrence: unforeseen obstacles; establishing and maintaining physician buy-in; establishing and maintaining staff buy-in; implementing the protocol as directed and with minimal intrusiveness; maintaining enthusiasm for the project over time; and knowing where (and where not) to spend our time, energy, and money. Strategies were developed to overcome or minimize the impact of problems on a case-by-case basis.

Conclusions: Successful practice-based research requires awareness of study design issues and an appreciation of clinical practice logistics and priorities. Every effort must be made to include doctors and office staff in the implementation of the study in a manner that minimizes the study's intrusiveness and its economic impact on office organization, routine, and personnel. Investigators must understand and accept that there will be areas of the research environment over which they have no direct control. Challenges will be many, but they will be diminished by the rewards.

Key Indexing Terms: Research; Chiropractic; Medicine

Thoracic discherniation: A case report.

Karl Lamb, DC

The chiropractor's role in pain management for oncology patients.

Jeffrey Schneider, DC and Scott Gilford, DC

JANUARY 2001

©2024 Dynamic Chiropractic™ All Rights Reserved