

**P4-036 Contribution of the Paretic and Nonparetic Leg to Balance Maintenance in Stroke Patients**

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**Background:** Restoration of the efficacy of the paretic leg and compensation in the nonparetic leg can both contribute to improved balance maintenance during stroke recovery. This study presents a new approach to differentiate between both by quantifying the contribution of the paretic and nonparetic leg to balance control. **Methods:** 8 chronic stroke patients participated in the study. Balance responses were elicited by continuous platform movements (forward-backward) that consisted of a multisine signal. Body sway as well as the ground reaction forces of each foot was measured. Based on the system-identification technique, the relative contribution per leg to the total amount of generated corrective torque to correct body sway and maintain balance was calculated. **Results:** All patients showed a relatively smaller balance contribution of the paretic leg ( $P < 0.05$ ). This asymmetry did not correspond to the asymmetry in weightbearing. The balance contribution of the paretic leg was consistently smaller than its contribution to weightbearing but showed no correlation. **Conclusion:** The presented approach objectively quantifies the contribution of each leg to overall balance maintenance. Application of this method in longitudinal surveys of balance rehabilitation in stroke patients makes it possible to differentiate between restoration of the affected leg and compensation in the unaffected leg. Such insights will be critical for the development and evaluation of rehabilitation strategies.

**P4-037 Physical Therapists' Perceptions and Utilization of Medical Imaging Information in Practice**

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**Background:** To gather information about physical therapists' perceptions and utilization of medical imaging information in clinical practice. **Methods:** 300 physical therapists were randomly selected. A survey questionnaire was developed and sent to these physical therapists. Of the 300, 120 completed and returned the surveys. The questionnaire contained demographic information questions and items regarding their perceptions and utilization of medical imaging in practice. Data were then transcribed to spreadsheets for analysis. **Results:** Descriptive statistics were generated for both demographic information and items pertaining to perception and utilization of medical imaging in practice. Survey results indicate that physical therapists recognize the value of medical imaging information. However, availability of the information (both reports and images) is limited all across practice areas. Therapists also allude to a lack of knowledge regarding the interpretation of medical imaging information for use in practice. **Conclusion:**

The results indicate that although therapists perceive that this type of information is important, they have limited knowledge about how to interpret this information and utilize it to improve patient care. Furthermore, access to medical imaging information is limited, and overall utilization of information from medical imaging studies among physical therapists is low.

**P4-039 Roles of Opioid Receptors in Hyperalgesic Effect of Low Doses of Morphine**

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**Background:** A growing body of evidence suggests that extremely low doses of morphine enhance sensitivity to pain (hyperalgesia). Three opioid receptor classes are generally recognized. In this study, we tried to determine which opioid receptor(s) is involved in hyperalgesic effect of morphine. **Methods:** Agonists specific for mu, kappa, and delta opioid receptors (Damo, U50, and Dadle) were injected intraplantar 10 min before formalin injection, and the resultant nociceptive behavior was assayed in the formalin test for 50 min (50 mcl formalin 2.5% i.pl). **Results:** Intraplantar low dose of morphine (0.01 mcg/paw), damo (1 mcg/paw), dadle (0.01 mcg/paw), and U50 (1 mcg/PAW) before formalin injection (10 min) had no significant effect on the nociceptive behavior in phase 1 of the formalin test. During the phase 2, morphine and other opioid agonists produced hyperalgesic effect ( $P < 0.01$  and  $P < 0.05$ , respectively). **Conclusion:** The results demonstrate the ability of mu, kappa, and delta opioid receptor agonists to mediate hyperalgesia during the 2nd phase of the formalin test.

**P4-040 Treatment with Low-Frequency Electromagnetic Field: Possibility of Symptoms Improvement in MS Patients (Pilot Study)**

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**Background:** The existence of the brain's magnetic field, and the difference between the magnetic profile of the normal v. pathologic brain has been known from the classic work of Cohen from 1972. A low-frequency electromagnetic field (EMF) might have a broad spectrum of experimental and clinical potentials, including alteration of lymphocyte activities, induction of stress genes, enhancement of nerve regeneration, and improvement of some clinical symptoms. **Methods:** A total of 7 patients with clinically definite multiple sclerosis (MS) were treated with pulsed low-frequency (4-8 Hz) EMF in the 0.5 mT range, for 20 min/d. Each patient received 20 applications. A magnetic pulsing device was placed over the spinal column at the low cervical level. A set of tests (EDSS, FIM, quality-of-life questionnaire) was used to evaluate MS disease before and after the treatment. **Results:** After 20 applications, the patients experienced the alleviation of some symptoms, including a prolonged reduction of hand tremor and chronic fatigue level, and improvement of mood, with important effect to activities of daily living. A therapy had no effect on spasticity, bladder control, diplopia, and weakness of the legs. **Conclusion:** This pilot study, albeit small in number of patients, supports our further clinical investigation on potentially beneficial effects of low-frequency EMF in MS patients. The controversy derives from the