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# PHYSICAL MEDICINE AND REHABILITATION

May 18-19, 2018 Osaka, Japan



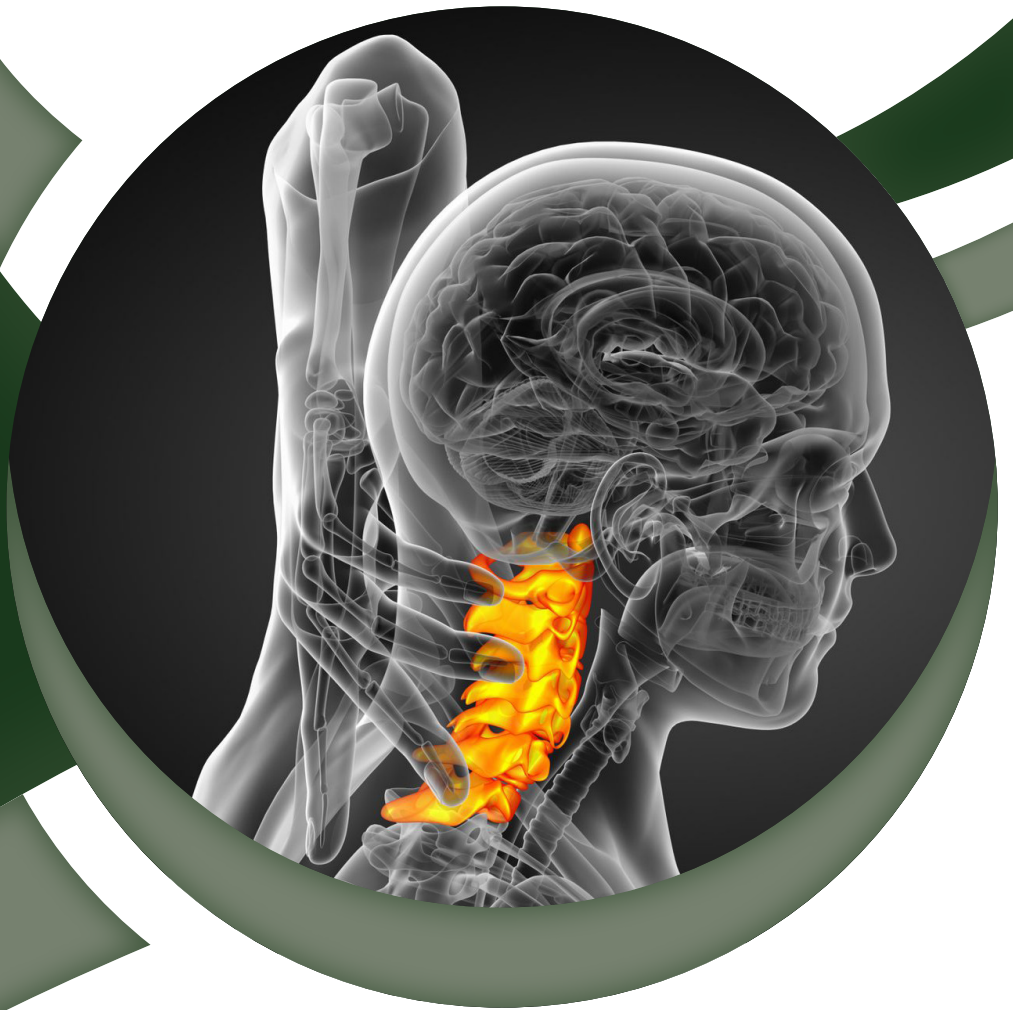
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7<sup>th</sup> World Congress on  
**Physical Medicine and  
Rehabilitation**

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**Keynote Forum**  
**(Day 1)**

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# PHYSICAL MEDICINE AND REHABILITATION

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## Seung Hee Ho

Korea National Rehabilitation Research Institute, Republic of Korea

### Effectiveness of transferring medical facilities of stroke patients

**Purpose:** The purpose of this study was to analyze the medical use status according to the transferring medical facilities of stroke patients in 2005.

**Method:** This study used data from the National Health Insurance Corporation from 2005 to 2015. The data obtained from a total of 4,480 new stroke patients (2005) were analyzed. Group-1 [General hospital (Hospital activities): 542; 12.10%], Group-2 [General hospital (General hospital): 3,639; 81.23%] and Group-3 [General hospital (Convalescent hospital): 299; 6.67%] were classified transferring medical facilities for patients with stroke. We compared the medical costs and healthcare utilization patterns among the three groups. The obtained data were analyzed with a SAS 9.4 program using Wilcoxon-test and ANOVA.

**Result:** The analysis of inpatient medical services showed that Group-3 spent more medical costs ( $p=0.003$ ) and stayed longer in hospital ( $p<0.0001$ ) compared to the other two groups (G1: 15,174 \$, 221 days; G2: 13,526.62 \$, 172 days; G3: 18,581.22 \$, 268 days). As for the use of outpatient medical services, there was a significant difference in outpatient visits among the three groups. The number of outpatient visits was the longest with Group-3 (14 days) and the shortest Group-2 (9 days) [ $p=0.0209$ ]. But there was no significant difference in outpatient medical costs.

**Conclusion:** By providing an appropriate rehabilitation medical delivery system for stroke patients, we might be able to lay the groundwork for establishing the rehabilitation medical delivery system.

### Biography

Seung Hee Ho is the Director of Department of Rehabilitation Standard and Policy, NRC. Her research interests at NRRI include the development of rehabilitation programs, health promotion interventions for people with disabilities and development of functional assessment tools and patient classification systems. She is a Member of the Health Committee of RI (Rehabilitation International), Republic of Korea. Previously, she was a Research Assistant Professor at the Department of Health Informatics, Graduate School of Public Health, Yonsei University, Republic of Korea, researching the knowledge-based system and data mining application in healthcare.

[hsh7@korea.kr](mailto:hsh7@korea.kr)

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# PHYSICAL MEDICINE AND REHABILITATION

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## *Marcos Maldonado Diaz*

*Clínica Alemana Santiago, Chile*

### **Intervention strategies for patients with acquired brain injury considering the motor learning pathways available**

Despite the variety of motor learning tools that we find for the physiotherapy treatment of patients who have suffered an acquired brain injury, we do not necessarily use the most optimal learning paths considering each case. The virtual reality programs that are currently being incorporated use the principles of motor learning, through visual, auditory and verbal stimuli and provide quantitative information on the motor performance of patients according to parameters such as intensity, frequency and time, parameters that we do not necessarily consider in our therapeutic decisions. Many times, we work with the best-known ways of learning and do not incorporate alternative ways that could lead to the achievement of the patient's goals. If we do not know how to program our routines with a technical perspective, we will have difficulties in incorporating technology into our services, affecting patient learning in an optimal way. Four clinical conditions were analyzed and the best learning routes were proposed according to the analysis of the affected memory processes and the most appropriate conditions of practice were suggested. We chose four types of conditions that are not generally considered in systematic studies. These are expressive aphasia, comprehensive aphasia, executive disorders and agnosias. The evidence existing in the last 5 years regarding the therapeutic management of these tables and the measurement of their progression was compared and compared with the use of motor learning principles. A guide was designed for the therapist that allows choosing the most precise pathways of practice using the principles of motor learning.

### **Biography**

Marcos Maldonado Diaz is currently part of the Neurorehabilitation team of Clinica Alemana de Santiago and is a Professor at the Universidad de Los Andes. He also participates as a Deputy of the Magister in Neurorehabilitation of the Andres Bello University. He has completed his Diploma in Health Management and Research Methodology. He has published 3 papers in the *Chilean Kinesiology Journal* and one in *Neurorehabilitation and Neural Repair*.

[marcosmaldonado.k@gmail.com](mailto:marcosmaldonado.k@gmail.com)

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## PHYSICAL MEDICINE AND REHABILITATION

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## Yong Seok Jee

Hanseo University, Republic of Korea

### Effect of WB-EMS with isometric exercise on adipocytokine and body condition in abdominal obese men

**Background:** A whole body-electromyostimulation (WB-EMS) can provide electrical stimulation to wide area where several muscles can be trained simultaneously through wearing a garment using electrode system. Even though there is some evidence that WB-EMS improves body condition, the issues have not been confirmed that a dose-response effect exists between different impulse-intensity and how WB-EMS affects adipocytokine and anthropometric variables including body composition, waist circumference (WC), and thigh circumference (TC) in obese men.

**Methods:** 33 abdominal obese men (mean age=24.42; SD=2.28) were recruited. They provided written informed consent and participated in baseline testing on a range of anthropometric and blood sample measures. After taking baseline test, subjects were randomly assigned to one of four groups: Control (CON; n=9), low impulse-intensity (LII; n=9), mid impulse-intensity (MII; n=8) or high impulse-intensity (HII; n=7). From baseline, at Week 6 and at Week 12 anthropometric and adipocytokine measures were re-assessed. All of them were given a WB-EMS suit that fit their size, composed of a silicone conductive pad, and wireless materials made by Miracle®. The electrical impulse-intensity of the suit was controlled via Bluetooth. WB-EMS enabled the simultaneous activation of 8 muscle groups with selectable intensities. Although the electric frequency (85 Hz), impulse-width (350 msec), and impulse on:off time (6:4 sec) were same in all groups, the impulse-intensity was provided 0%, 50%, 60% and 80%, of 1 maximal tolerance (160V) with CON, LII, MII and HII, respectively. All groups underwent 20 min WB-EMS-sessions three times a week for 12 weeks. The non-parametric Kruskal-Wallis and Friedman tests were used to examine the differences of variables among groups and within times.

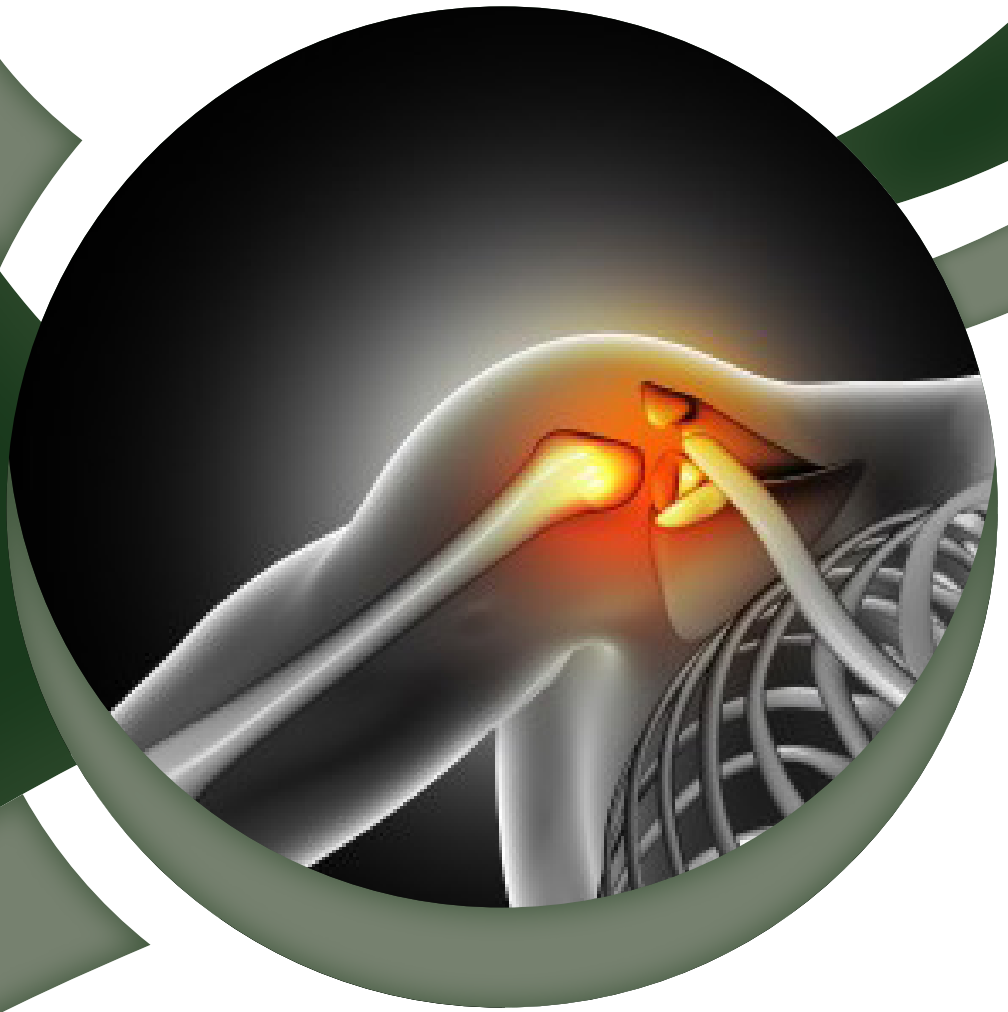
**Results:** In comparison with the CON, three groups provided by WB-EMS stimuli had significant reductions in a number of anthropometric measures and improvements in adipocytokine measures. The improvements on both anthropometric measures and adipocytokine of obese men were greater for the high impulse intensity condition, which indicated that changes in adipocytokine might be mediated by body condition changes. In detail, the visfatin (P=0.005) and resistin (P=0.012) of HII were significantly lower, whereas adiponectin (P=0.029) of HII was higher at Week 12. Second, the WC of HII (P=0.001) was decreased sequentially. Meanwhile, muscle mass (P=0.014) of HII was higher, whereas fat mass (P=0.021) and BMI (P=0.022) of HII were lower compared with those of other groups. Third, abdominal visceral fat area (AVF; P=0.028) and abdominal subcutaneous fat area (ASF; P=0.013) of HII were lower than those of other groups at Week 12, except for abdominal total fat area (ATF) of HII. Fourth, right and left TVF (thigh visceral fat area) of CON, LII and MII from Week 0 to Week 12 showed little increasing or no change, whereas all variables of HII showed significant decreases.

**Conclusion:** This study confirmed that the high electrical impulse of WB-EMS can improve adipocytokine, BC and WC and TC in abdominal obese men.

#### Biography

Yong-Seok Jee has completed his PhD from Korea University and obtained certification for Obesity Treatment from Harvard Medical School in 2006. He is the Director of Sports Industrial Science, a premier bio-soft service organization. He has published more than 250 papers in reputed journals and has been serving as an Editorial Board Member of *Journal of Exercise Rehabilitation* and as a Reviewer in *Brain Research*.

[jeeys@hanseo.ac.kr](mailto:jeeys@hanseo.ac.kr)



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## PHYSICAL MEDICINE AND REHABILITATION

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***Dae Sung Park****Konyang University, Republic of Korea***The effects of finger ROM, muscle strength and function by pneumatic assisted hand exercise device: Case study**

The aim of this study was to improve the range of motion (ROM), strength, function of finger. A study is conducted by the exercise device with a patient who has finger contracture due to burn injury. The exercise device used in this study is to maintain mobility, prevent the development of the contracture and promote the functionality of hand. This study was conducted one patient with limited of range of motion (LROM) of inter-phalangeal joint in chronic after 20 years from electrical burn injury in hand. A patient performed pneumatic assisted hand exercise (PaHE) device for eight weeks. We measured ROM, strength and function of 2nd, 3rd finger at pre-posttest. After eight-week rehabilitation by PaHE showed improvement on 2nd DIP ROM (ext 35°, flex 5°), PIP ROM (ext 22.5° flex 15°), 3rd DIP ROM (ext 42.5°, flex 2.5°), PIP ROM (ext 27.5°, flex 5°), 2nd finger strength (pre 56.1 nm, post 101.5 nm), 3rd finger strength (pre 75.9 nm, post 120.5 nm) and Jebsen-Taylor Hand Function Test score (pre 46 score, post 54 score) of fingers. The PaHE device is useful to rehabilitation for a patient with LOM of finger. We had only one subject. The air tube of PaHE had a good structure for the second and third fingers. We propose that further study need more patients with an acute case of injury in hand and supplement the structure of the air tube for better outcome.

**Biography**

Dae Sung Park is an Editorial board member at Konyang University, Republic of Korea. He started the research with support from the stem project. The study protocol was approved by the institutional review board of the Konyang university, Daejeon, Republic of Korea. We won the 9th Aid Device Idea Competition held at Gyeonggi Provincial Rehabilitation Engineering Service Research Support Center.

[daeric@konyang.ac.kr](mailto:daeric@konyang.ac.kr)**Notes:**

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# PHYSICAL MEDICINE AND REHABILITATION

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## Seung Hee Ho

*Korea National Rehabilitation Research Institute, Republic of Korea*

### New approaches of health promotion for people with disabilities

The public health community has traditionally paid little attention to the health needs of people with disabilities. Disability and public health have historically been separated by their focuses and definitions. Recently, however, government and international organizations mark a shift toward engaging in the health concerns of people with disabilities. Encouraging trends that consider the health of people with disabilities as a priority are emerging in public health. For example, the World Health Organization published the international classification of Functioning, Disability, and Health, a companion to the International Classification of Diseases. Second, a vision for the future of public health and disability is outlined in Healthy People and health plan, which includes people with disabilities as a target population.

So, How can health systems address the health inequalities experienced by people with disabilities? Governments can improve health outcomes for people with disabilities by improving access to quality, affordable health care services. I would like to suggest the following. The first one is on reforming policy and legislation. The second one is to address barriers to service delivery. Third, we should do something about to address human resource barriers. The last one is about data and research. Evidence leads to better decisions and better health outcomes.

The Korea National Rehabilitation Center is performing the health management research project The first part of the project is developing a disability monitoring system. The second part is the analysis of disease patterns of people with disabilities. The last one is developing health promotion programs for them.

From the lessons we have learned, we identify the following recommendations for future projects, First, we need to establish monitoring and evaluation systems to assess interventions and long-term health outcomes for people with disabilities. And we have to provide evidence-based scientific data to be used for improving the health of people with disabilities. Then we need to reinforce health care policy & system for people with disabilities according to the disability characteristics, and empower people with disabilities to maximize their health. Also we need to explore the options for use of communication and information technologies for improving services, health care capacity, and information access to people with disabilities. Most of all, the comprehensive health management system consisting of community-based primary care, rehabilitation services, health promotion.

### Biography

Seung Hee Ho is a Director, Dept. of Rehabilitation Standard & Policy, NRC. Seung Hee Ho, Ph.D., is Chair of the Department of Rehabilitation Standard and Policy, National Rehabilitation Research Institute. Her research interests at NRRRI include the development of rehabilitation programs, health promotion interventions for people with disabilities, and development of functional assessment tools & patient classification systems. She is a member of the health committee, of RI(Rehabilitation International) Korea.Until 2008, she was a research assistant professor, at the department of health informatics, Graduate School of Public Health, Yonsei University, Rep of Korea, researching the knowledge-based system, data mining application in healthcare

[hsh7@korea.kr](mailto:hsh7@korea.kr)



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## Rasmi Muammer

Yeditepe University, Turkey

### Evaluation of The Relationship Between Body Awareness, Static and Dynamic Balance and Proprioception of The Knee and Ankle in Subjects Who Do Exercise Regularly.

**Aim:** The purpose of this study was to investigate the effects of exercise on body awareness, balance and proprioception in healthy subjects.

**Method:** Thirty voluntary participants included in this study. The exercise group (n=15) and the non-exercise group (n=15). Body awareness, static and dynamic balance and proprioception of ankle and knee were evaluated. The body awareness was evaluated using Body Awareness Questionnaire (BAQ); static balance was evaluated by One-Leg Stance Test and dynamic balance was evaluated using Star Excursion Balance Test. Proprioception of the ankle was evaluated at 10° dorsiflexion and 25° plantarflexion and the knee was evaluated at 30 ° in both flexion and extension directions with both eyes open and eyes closed by using Active Reproduction Test.

**Results:** There was a significant difference in BAQ and static and dynamic balance scores between exercising and non-exercising groups ( $p < 0,001$ ) ( $p < 0,05$ ). However, the knee and ankle proprioception results showed no statistically significant differences between exercising and non-exercising groups ( $p > 0,05$ ). There was a positive correlation between body awareness and both dynamic and static balance in all participant ( $p < 0,05$ ).

**Conclusion:** Exercise has positive impact on body awareness and balance.

**Key words:** Balance, Body Awareness, Exercise, Proprioception

### Biography

Rasmi Muammer is currently working as an Associate Professor, Department of Physiotherapy and Rehabilitation, Yeditepe University, Turkey

[rasmymuammer@yahoo.com](mailto:rasmymuammer@yahoo.com)

### Notes: