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**※ Please include line numbers on the left side of the article.**

**The Correlation between Hand Function and Sensibility on Constraint-Induced Movement Therapy in Hemiplegia** (Times New Roman, 12.5pt, Bold)

***Purpose*** The aim of this study was to investigate the effects of virtual reality games (VRG) on muscle activity and balance in elderly women. ***Methods*** Subjects were elderly women aged 65 or older (n =20). The subjects were assigned to VRG group, and 10 were assigned to a general exercise group, The intervention was performed for 40 min per session, twice a week, for eight weeks. ***Results*** As shown by the result of the Berg balance Scale (BBS) and Functional Reach Test (FRT), there were no significant differences in the balance abilities of the GE group, wheras there was a significant difference in those of the VRG group. There was also significant between group difference in balance abilities. In the comparison of the muscle activity of the tibialis anterio (TA) and gastrocenemius medialis (GCM), there was no significant difference in the GE group and whereas there was significant difference in the VRG group. Furthermore, there was significant between group difference in muscle activity. ***Conclusion*** VRG was effective in improving muscle activity and balance in elderly women aged 65 and older.

(Times New Roman 10pt, less than 250 words, write one paragraph without references)

***Key words*** Elderly Women, Balance, SEMG, Virtual reality, Games

(Times New Roman 10pt, 5 words, please choose the plural between the plural and the singular form- if your keyword could be “method” or “methods, use “methods”)

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This paper was supported by the research grant of the Bobath Memorial Hospital in 2014. (Malgun Gothic, 9pt)

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**I. Introduction** (Times New Roman, 11pt, Bold)

The ankle joint has a major impact on balance and posture control when humans stand and walk,1) and provides shock absorption to keep the trunk stable when walking.2) The ankle joint supports weight bearing through the contraction of the muscles of the lower extremity and maintains good posture by sensory input from the feet.3) Proprioception in the ankle joint is used to balance postural sway.4) Insufficient proprioception due to anatomical instability of the musculoskeletal system or muscle weakness can contribute to ankle joint instability.5) (Times New Roman, 9.5pt)

**II. Materials and Methods** (Times New Roman, 11pt, Bold)

The inclusion criteria were as follows: those who could walk independently, those without restricted ankle range of motion, and those who had no joint contractures, pain, or fractures in the musculoskeletal system.31) The exclusion criteria were as follows: those with metal implants in their calves and ankles or those with a history of heart disease.23) The characteristics of the study subjects are as in Table 1. (Times New Roman, 9.5pt)

**III. Results** (Times New Roman, 11pt, Bold)

The right tibialis anterior activity increased from 18.69% MVIC pre-intervention to 24.32% MVIC post-intervention, showing a significant difference of 5.63% MVIC (*p*<0.05), and the left tibialis anterior activity increased from 15.74% MVIC pre-intervention to 20.83% MVIC post-intervention, showing a significant difference of 5.10% MVIC (*p*<0.05). The right medial GCM activity decreased from 154.60% MVIC pre-intervention to 84.43% MVIC post-intervention, showing a significant difference of 70.16% MVIC (*p*<0.05). (Times New Roman, 9.5pt)

**Ⅳ. Discussion** (Times New Roman, 11pt, Bold)

In this study, GCM NMES and ankle control training were combined to determine foot function and static balance ability in healthy subjects. This study was conducted for a total of four weeks before and after the treatment intervention. Ankle mobility was measured by ankle range of motion and a knee to wall test; foot pressure by using smart insoles; and muscle activity of the tibialis anterior, GCM, and soleus by using surface electromyography equipment. The sway index was then measured using a static balancing machine. Foot function was defined to include ankle mobility, foot pressure, and muscle activity of the lower extremity.39) (Times New Roman, 9.5pt)

**※ Table titles, contents, and descriptions should be in English.**

**<** **Inserting a table >**

**Table 1. General characteristics of the subjects** (Times New Roman, 9.5pt)

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| --- | --- | --- | --- |
| **Variables**  (Times New Roman, 9.5pt, Bold) |  |  |  |
| Gender (M/F)  (Times New Roman, 9.5pt) |  |  |  |
| **Note.** M: Male, F: Female. (Table description - Times New Roman, 9.5pt) | | | |

**※ Figure titles and figure descriptions should be in English.**

**<** **Inserting a picture Method 1>**

**Figure 1. Keep the center of pressure in the path connecting the both sides and find the target**. (Times New Roman, 9.5pt)

**< Inserting a picture Method 2>**

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| EMB000023c41f50  **Figure 1. Keep the center of pressure in the path connecting the both sides and find the target.** | EMB000023c41f51  **Figure 2. Move in to the center into the target when it is blinking.** |

**References (Times New Roman. 11pt, Bold)**

**※ Please write all cited references in English.**

**- Even if it is domestic literature, please write it in English in the same way as foreign literature.**

**- Please write the full name of the journal.**

*Standard journal article*

1. Broeks JG, Lankhorst GJ, Rumping K, et al. The long-term outcome of arm function after stroke: Results of a follow-up study. Disability and Rehabilitation. 1999;21(8):357-64. (Times New Roman, 9.5pt)

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*Personal author(s)*

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