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学位論文題名	Effects of visual-motor illusions with different visual stimuli on the sit-to-stand of people with hemiplegia following stroke: A randomized crossover controlled trial (異なる視覚刺激の視覚性運動錯覚が脳卒中片麻痺患者の立ち上がり に及ぼす影響：無作為化クロスオーバー比較試験)
論文審査委員	主査 教授 網本 和 委員 教授 浅川 康吉 委員 准教授 金子 文成

【論文の内容の要旨】

Visual-motor illusion uses a video image displayed on a monitor to reflect limb motion and create an illusion that the participant's limbs are moving, although they are not. Kinesthetic sensations are perceived without peripheral sensory inputs by observing the body movement in a video. Visual-motor illusion promotes motor imagery and brain excitability that is similar to the activity that occurs if the viewed joint movement was actually performed. The objective of this study was to determine the effects of different visual stimuli during visual-motor illusion on sit-to-stand in people with hemiplegia following stroke. This was a randomized crossover controlled trial. Twenty people with hemiplegia following stroke were randomly divided into groups. The video images used for visual-motor illusion were ankle dorsiflexion without resistance (standard visual-motor illusion [standard illusion]) and maximum effort dorsiflexion with resistance (power visual-motor illusion [power illusion]). People with hemiplegia following stroke underwent both illusion interventions with a 1-week washout period in between; group A started with the standard illusion intervention and group B started with the power illusion intervention. Outcomes included the sit-to-stand duration, maximum weight-bearing value, trunk movement during sit-to-stand, ankle joint movement during sit-to-stand, and active ankle dorsiflexion movement on the paralyzed

side. The angular velocity of the trunk and ankle joints increased significantly during sit-to stand, and sit-to-stand duration decreased significantly in response only to power illusion. In addition, the change in angular velocity of active ankle dorsiflexion was significantly greater in response to power illusion than was the change in response to standard illusion. The power illusion may provide clinically beneficial changes in the suppression of triceps surae muscle tone and ankle dorsiflexion movement during sit-to-stand and an increase in the paralyzed side load during sit-to-stand. Therefore, power illusion induces a greater improvement in paralyzed ankle dorsiflexion function than standard illusion, resulting in shorter sit-to-stand duration.