

■ INFORMATION

Call for papers: The 53rd Japanese Occupational Therapy Congress and Expo

Key words of OT / Synonyms

◆ FOREWORD

Nurture curiosity

Chinami Ishizuki 599

◆ RESEARCH ARTICLES

The relationship between chopsticks agility and upper extremity evaluations in acute stroke patients

Ken Kondo et al 601

Effects of reading aloud and singing songs on the cognitive function of the elderly:
A randomized controlled trial

Keiko Honda et al 608

Factors of school adaptation for school-age children with developmental disabilities:

Mothers' perspectives

Ayako Sukegawa et al 616

Development of a self-assessment checklist for occupational therapists to share information with nursing care workers at a special nursing home for the elderly

Yoshihiro Usami et al 627

Process of stroke survivors' completion of day care center programs in Japan

Sosuke Nagao et al 637

Effects of mental stress and physical activity using extra-epidermal electrical stimulation-evoked potentials

Hiroki Takahashi et al 646

◆ PRACTICAL REPORTS

Effectiveness of early occupational therapy intervention in the intensive care unit for a patient with respiratory failure due to atelectasis:

A case report

Yudai Fujimoto et al 654

The study of a task-specific approach and a behavioral strategy by ADOC-H in daily

life for a subacute stroke patient	
Takahiro Takino et al	661
Effectiveness of compensation utilizing verbal functions and stand-up exercises leading to a reduced need for assistance with ADL for a case of severe unilateral spatial neglect	
Mayu Kondo et al	669
Robotic therapy and modified constraint-induced movement therapy for a subacute patient with moderate upper limb paralysis after stroke:	
A case study	
Naoya Anmoto et al	677
Occupational therapy through continuous eating training and improved use of utensils during mealtimes for a child with Angelman syndrome:	
A case study	
Shingo Shiratori	684
The effect of visiting-type/short-term intensive prevention services (service C) to support the elderly:	
A case study	
Yu Ishibashi et al	690
◆SHORT REPORT	
The clinical usefulness of the Mini-Mental State Examination for cerebellar cognitive affective syndrome	
Tsuyoshi Kumagai et al	697
■COMPLETE CONTENTS OF VOL. 37	701
■INDEX OF AUTHORS OF VOL. 37	704
■AUTHORS' GUIDE	709
■EDITOR' S NOTE	712

◆RESEARCH ARTICLES

The relationship between chopsticks agility and upper extremity evaluations in acute stroke patients

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We investigated the relationship between chopsticks agility and upper extremity evaluations, including grip strength, pinch strength, and the ten-second grip and release test, using the Fugl-Meyer Assessment for Upper Extremity, the Simple Test for Evaluating Hand Function and the Motor Activity Log. Fifty-one acute stroke patients within one week of stroke onset with dominant hand paralysis participated in the study. Logistic regression analyses were used to determine factors for chopsticks agility. Moreover, cutoff points were estimated with the help of a receiver operating characteristic (ROC) curve. Results showed that the ten-second grip and release test could be a significant contributing factor in chopsticks agility, and its cutoff point was 14 times. Thus, chopsticks agility may be predicted using the assessment of ten-second grip and release test in acute stroke patients with dominant hand paralyse.

Key words: Stroke, Chopsticks agility, Evaluation

**Effects of reading aloud and singing songs on the cognitive function of the elderly:
A randomized controlled trial**

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Objectives: The purpose of this study was to investigate the effects of programs for reading poems aloud and singing songs on cognitive and emotional function and the ADL of elderly persons. **Methods:** Forty-three people living in a nursing home were divided into three groups: a group receiving usual rehabilitation plus the reading a poem aloud program (the reading group), a group receiving usual rehabilitation plus the singing a song program (the singing group) and a group receiving only usual rehabilitation (the control group). Each group continued with the study for three months. Assessment items were cognitive function, emotional function and daily living ability. **Results:** The control group showed no difference from before to after the intervention. In the reading group, the score for the Frontal Assessment Battery at bedside (FAB) after intervention increased more than the scores before intervention ($p < 0.05$). In the singing group, both the Mini-Mental State Examination (MMSE) and FAB scores after intervention increased more than the scores before intervention ($p < 0.05$). **Conclusions:** In the reading group, reading a poem aloud was effective for improving frontal lobe functions. In the singing group, singing a song was effective for improving both frontal lobe and cognitive functions.

Key words: Reading aloud, Singing, Cognitive function

Factors of school adaptation for school-age children with developmental disabilities:

Mothers' perspectives

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This study investigated the factors affecting children with developmental disabilities who have reached school age in adapting to their new learning environment. Data were acquired through mothers' recollections. The study was carried out using the methodology triangulation based on three hypotheses of "Resilience of their caregivers", "Characteristics of the children", and "Social factors" and how these affected their school adaptation. The results indicate that the children with developmental disabilities attending school showed high maladaptation. The factors affecting their school adaptation were their sensory characteristics and the intra-individual differences between the intellectual functions and the adaptive functions from "Characteristics of the children", and school environment and the challenges of special needs education from "Social factors". However, "Resilience of their caregivers" was not a significant factor in their school adaptation.

Key words: Developmental disability, School age, Adaptation evaluation, Mother, Special needs education

Development of a self-assessment checklist for occupational therapists to share information with nursing care workers at a special nursing home for the elderly

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We developed a self-assessment checklist to evaluate how occupational therapists (OT) are involved in factors promoting information sharing with nursing care workers (CW) at a special nursing home for the elderly. We conducted a questionnaire on OTs working for special nursing homes for the elderly in Japan. 19 items of the checklist were analyzed by item reaction theory. We got responses from 223 people, and all the items were appropriate for the scale composition. In addition, it was found that the checklist had low measurement accuracy when executed with OTs with high ability to promote information sharing. Furthermore, it was confirmed that the measurement precision was sufficiently maintained when it was carried out on the OTs with moderate ability (somewhat lower).

Key words: Special nursing home for the elderly, Occupational therapy, Collaboration

Process of stroke survivors' completion of day care center programs in Japan

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Day care centers that operate under long-term care insurance in Japan are expected to have more clients transfer from day care centers to other social activity venues. The purpose of this study was to elucidate the process of clients' completion of the day care center program (and subsequent transfer thereof). Four stroke survivors who had used day care centers were interviewed on their experiences there. Trajectory

Equifinality Approach (TEA) was used to analyze the results in which the clients reported recovering their physical functions and qualitative improvement of activities of daily living due to the day care programs. Thereafter, they gained confidence to carry out daily activities and expanded the scopes of their activities and participation. The day care members (staff or other users) gave them direct or indirect opportunities to reconsider how they wanted to manage their lives without the day care. The clients also believed that the rehabilitation process would continue to be a part of their lives. Therefore, they voluntarily considered utilizing other social supports for their rehabilitation after completing the day care program. These findings suggest that day care centers promote community-dwelling stroke survivors' autonomous attitudes for rehabilitation and self-management.

Key words: Day care, Qualitative research, Long-term care insurance, Stroke

Effects of mental stress and physical activity using extra-epidermal electrical stimulation-evoked potentials

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Not only somatosensory pathways, but also areas of the brain that control emotion/cognition such as anterior cingulate cortex, are involved in the cognitive

processing nociceptive processing of pain. In addition, when measuring the brain's response to pain, the late positive component of the pain-related potential that appears at a latency of 250–300 msec, known as P2, is believed to reflect the mechanism of information processing that includes cognition/emotion rather than represent an actual pain sensation. To better understand the nociceptive processes surrounding pain, we enlisted 20 healthy volunteers to compare the influence of mental stress and physical activity on the P2 component in the pain-related potential using the backward digit span task and the ladder climbing exercise, respectively. The results showed that while mental stress may excite the anterior cingulate gyrus, thus increasing pain perception, physical activity may play a contrasting role in suppressing the perception of pain.

Key words: Pain, Nociceptive processing, Stress, Physical activity, Electroencephalogram

◆PRACTICAL REPORTS

**Effectiveness of early occupational therapy intervention in the intensive care unit for a patient with respiratory failure due to atelectasis:
A case report**

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Rehabilitation intervention has been proposed to improve medium to long term physical function for post intensive care syndrome in critically ill patients. We experienced a successful case with acute respiratory failure in which early occupational therapy commenced in the ICU. A 79-year-old female was admitted to the intensive care unit of our hospital due to the worsening of the respiratory condition caused by lung atelectasis after surgery for mandibular gingival cancer. She received

mechanical ventilation in the ICU, and the occupational therapy intervention was performed from day 3. Although she could communicate consciously, cognitive function, physical function, and ADL declined markedly. We proceeded with leaving bed and walking training in the ICU in cooperation with a physiotherapist and also carried out cognitive function training, functional occupational therapy, and ADL training. After continuing the intervention after leaving the ICU, the patient fully recovered from the lung atelectasis and the cognitive and physical function improved. Adverse effects due to occupational therapy intervention were not observed. The patient was transferred to the referral hospital for continuing cancer treatment 1 month later. Early occupational therapy intervention for patients with respiration management can be useful not only for improving ADL but also for improving cognitive and physical functions.

Key words: Critical care center, Intensive care unit, Early rehabilitation, Early occupational therapy

The study of a task-specific approach and a behavioral strategy by ADOC-H in daily life for a subacute stroke patient

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Task-specific training is the most empirically supported approach to rehabilitation of upper limb paralysis after stroke. However, it has been reported that task-specific training alone cannot lead to improved frequency of use of the paralyzed hand in daily life. This study provided early task-specific training for a stroke patient with severe upper limb paralysis to improve her upper extremity

function. Upon beginning the task-specific training, upper limb function improved. However, the training did not improve upper limb performance in daily life. Thus, we implemented Transfer Package using Aid for Decision-making in Occupation Choice for Hand (ADOC-H) and attempted to change the function of the paralyzed hand. As a result, frequency of use of the paralyzed hand in ADL improved, and the patient expressed positive opinions on the use of the paralyzed hand. Transfer package using ADOC-H can promote the frequency of use of a paralyzed hand.

Key words: Upper limb function, Behavior change, ADOC, Meaningful work

Effectiveness of compensation utilizing verbal functions and stand-up exercises leading to a reduced need for assistance with ADL for a case of severe unilateral spatial neglect

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This study examined the effectiveness of a comprehensive rehabilitation approach, comprising compensation based on verbalization and stand-up exercise, and focusing on preserved functions. The patient suffered from left unilateral spatial neglect and general and selective attentional dysfunction due to right thalamic hemorrhage and subsequent intraventricular rupture. During transfer training in moving from one supporting surface to another, the patient became aware of when she failed and how as she was encouraged to verbalize each step of transfer repeatedly, leading to an improvement in transfer ability. Stand-up exercise was employed to give her multiple sensory inputs aimed at improving unilateral spatial neglect and to strengthen muscles of the lower extremity and trunk, which led to a reduced need for assistance with ADL. The study showed the usefulness of the rehabilitation approach focusing

on residual functions and the effectiveness of the use of stand-up exercise which works on physical and cognitive functions in a comprehensive manner.

Key words: Unilateral spatial neglect, Function of language, Stand-up exercise, Transfer

Robotic therapy and modified constraint-induced movement therapy for a subacute patient with moderate upper limb paralysis after stroke:

A case study

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Robotic therapy (RT) has proved effective in patients with upper limb paralysis after stroke. However, some researchers have reported that using robotics alone does not promote use of the affected arm in activities of daily living. We provided modified constraint-induced movement therapy (modified CIMT) and self-training using ReoGo[®]-J (RT) during six weeks for a convalescent patient with upper limb paralysis after stroke. Modified CIMT was based on task-oriented training and behavioral strategy, termed “Transfer Package”, to facilitate use of the affected arm in real-life. As a result, this combined approach improved not only arm function but also the amount and quality of ward-life use of the affected arm. Additionally, arm function and the amount and quality of real-world use of the affected arm were further improved after discharge.

Key words: Upper-extremity function, Stroke, Robotics, Constraint induced movement therapy

Occupational therapy through continuous eating training and improved use of utensils during mealtimes for a child with Angelman syndrome:

A case study

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Occupational therapy was carried out for 2 years and 8 months for a child with Angelman syndrome (interstitial deletion type). From the age of 5, eating training for 10 minutes was carried out for one year for a total of 30 times per the family's request. Prior to the intervention the child received assistance in grasping objects due to ataxia-like movement of upper limbs. The occupational therapy consisted of observing the child's behavior, determining an eating method which was less likely to induce ataxia-like movements, and instructing accordingly. Through continuous eating training using spoons and forks, the child's ataxia-like movements decreased and grasping function improved, which resulted in a reduction in the amount of assistance given and an increase in active movement. The eating training by the occupational therapist showed the possibility of positively affecting the utilization of spoons and forks and reducing the assistance of the child with Angelman syndrome.

Key words: Angelman syndrome, Eating, Treatment, Developmental support, Childhood

The effect of visiting-type/short-term intensive prevention services (service C) to support the elderly:

A case study

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The life support comprehensive service C including visiting-type service C (hereinafter referred to as visit C) is a nursing long-term care prevention and living support service project. Its focus is to improve ADL through comprehensive preventative care and daily living support over the short term of 3 months. Mr. A suffered from cerebrovascular disease, and received certification of Needed Support Level 2. Thus, he was restricted from using the stove by the residence manager. Occupational intervention was limited to assisting Mr. A in preparing warm meals, including vegetables in the microwave instead of the stove. As a result, 3 months after the initial assessment, Mr. A experienced a significant increase in both motor and process skills of the Assessment of Motor and Process Skills (AMPS), but a decrease in Health Related Quality of Life (HRQOL). Thus, visit C may have a more positive effect on occupational performance than on HRQOL.

Key words: Preventive care, Community life support, Community health, AMPS, Occupational performance

◆SHORT REPORT

The clinical usefulness of the Mini-Mental State Examination for cerebellar cognitive affective syndrome

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Cerebellar cognitive affective syndrome (CCAS) is a neuropsychological syndrome caused by a cerebellar disorder and is characterized by four symptoms: Executive function disorder, impaired visuospatial ability, speech disturbance, and affective disorder. A patient exhibiting predominantly motor symptoms after cerebellar injury,

in whom cognitive impairment is not significantly apparent, is judged to have no problem in higher brain function in many cases. This study assessed higher brain function of 12 patients with CCAS showing only cerebellar injury using the Mini-Mental State Examination (MMSE). Consequently, CCAS was found in all patients. This study demonstrated the importance of performing not only motor function assessment but also neuropsychological assessment for rehabilitation from a cerebellar injury and the usefulness of MMSE in the assessment.

Key words: Attention functions, Higher brain dysfunction, Cognitive function, CCAS