

■ INFORMATION

The 51st Japanese Occupational Therapy Congress and Expo

◆ FOREWORD

Starting from the occupation for writing case studies

Mihoko Noda ----- 117

◆ CONTRIBUTION

Japanese guidelines for occupational therapy:

Cerebral palsy

Yasuhito Sengoku ----- 119

◆ LECTURES

Proposing community leadership for a resilient life

Kenetsu Shimizu ----- 129

Promoting special needs education and providing reasonable accommodation towards developing an inclusive education system:

Collaboration between occupational therapists and education

Yuichi Tanaka ----- 135

Hints for everybody who tries to write a scientific paper: How to critique and to refer to past papers:

Number 8 “Reading research articles and understanding previous researchers”

Satoe Ichihara-Takeda ----- 142

◆ RESEARCH ARTICLES

Robotic therapy in multiple interventions for severe-to-moderate arm deficits in chronic stroke patients

Takashi Takebayashi et al ----- 148

The implicit cognition of persons with mental illness owned by occupational therapy students

Hiromu Ono et al ----- 159

Understanding information sharing among occupational therapists and care workers in special nursing homes for the elderly

Yoshihiro Usami et al ----- 170

Meaningful occupations of special needs children:

Effects of occupational therapy on the developmentally disabled	
Keiko Omatsu et al -----	183
A pilot study of reliability and validity of the ADL-focused Occupation-based Neurobehavioral Evaluation(A-ONE) in Japan	
Yasuhiro Higashi et al -----	194
DASH (Disabilities of the Arm, Shoulder and Hand) and related factors after endoscopic carpal tunnel release in patients with carpal tunnel syndrome	
Junya Hirata et al -----	204
<b>◆PRACTICAL REPORTS</b>	
Effects of a behavioral approach for lower-body dressing on cognitive dysfunction	
Fumiko Morishita et al -----	215
Efficacy of Simulated Presence Therapy using a family video-letter on verbally disruptive behaviors:	
A case of an elderly patient with dementia	
Hiroyuki Tanaka et al -----	223
The effects of sitting posture on arm coordination:	
A pilot study	
Ryosuke Miyadera et al -----	230
Effects of a task-oriented upper extremity function approach using Aid for Decision-making in Occupation Choice (ADOC):	
A case report	
Yuri Hirano et al -----	238
■AUTHORS' GUIDE -----	245
■EDITOR'S NOTE -----	248

◆RESEARCH ARTICLES

**Robotic therapy in multiple interventions for severe-to-moderate arm deficits in chronic stroke patients**

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Effective approaches for severe upper extremity paresis after stroke have not yet been established. This study reports on the progress of several interventions on upper extremity function for chronic stroke patients. Subjects were eight chronic stroke patients with severe upper extremity paresis who received triweekly interventions consisting of 1.0-hour robotic therapy, and 0.5-hour constraint-induced movement therapy combined with electrical stimulation and orthosis therapy after botulinum toxin type A injections. Outcomes for all subjects' upper extremity function and amount of affected arm use in activities of daily living significantly improved from pre- to post-intervention. The results indicate that the above multilateral approaches for paretic upper extremity in chronic stroke patients might be efficient.

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

**The implicit cognition of persons with mental illness owned by occupational therapy students**

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The purpose of this study was to assess the effect of occupational therapy students' implicit cognition towards the mentally disabled through the implicit association test. The results indicate that the occupational therapy students did not demonstrate explicit negative bias towards the mentally disabled, but instead revealed negative implicit cognition towards them. Furthermore, changing the Japanese notation for the term "disabled" from the Chinese character to hiragana had little effect on the students' negative implicit cognition. Therefore, it is necessary to educate occupational therapists knowing that the students have implicit negative cognition towards mentally disabled patients, and that fieldwork instruction should include opportunities for students to develop mutual relationships with mentally disabled patients.

Key words: Occupational therapy student, Person with a mental illness, Clinical education, Implicit cognition, Implicit association test

### **Understanding information sharing among occupational therapists and care workers in special nursing homes for the elderly**

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A semi-structured interview was conducted with 10 OTs and 7 CWs working in special elderly nursing homes in order to clarify their understanding of information sharing. The results of the interviews of the OTs and CWs were compared to identify the means of promoting collaboration between the two groups. The analysis shed light on the information that OTs and CWs wanted to share and the factors that promote information sharing. The relationship between the information that OTs and CWs wanted to share on the one hand and the factors that promote information sharing on the other was examined. Furthermore, the factors that promote information sharing between OTs and CWs was clarified. Information sharing should be practiced between OTs and

CWs while also considering the factors that promote it.

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

### **Meaningful occupations of special needs children:**

#### **Effects of occupational therapy on the developmentally disabled**

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The purpose of this study was to confirm the meaningful occupations of special needs children for consideration by occupational therapists. We interviewed 20 occupational therapists and the qualitatively analyzed results revealed that the meaningful occupations of the special needs children were those practiced in occupational therapy. Occupational therapists worked on those occupations with the children and their parents. Occupational therapists and parents gave meanings to the children's feelings and processes through language, facilitating the production of their life stories and building their confidence to live in society. Thus, the meaningful occupations were common to both children and adults, and they were expressed by the client, and were related to the client's life stories. The client finds new meaning in life by engaging in meaningful occupations.

Key words: Meaningful occupation, Special need children, Occupational therapist, Qualitative research

### **A pilot study of reliability and validity of the ADL-focused Occupation-based Neurobehavioral Evaluation (A-ONE) in Japan**

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A Japanese pilot study of reliability and validity of the ADL-focused Occupation-based Neurobehavioral Evaluation (A-ONE) which was developed and standardized abroad can be used to evaluate both the performance of activities of daily living (ADL) tasks (5 domains 22 items) and neurobehavioral problems that interfere with ADL task performance among clients with neurological disorders. Inter-rater and intra-rater reliability was tested with 4 stroke clients by 3 raters and criterion-related validity was tested with 22 stroke clients. We found moderate and high concordance rates and correlation coefficients. However, we could not examine some items in A-ONE. We will make an A-ONE Japanese version and examine its reliability and validity with more patients.

Key words: Reliability, Validity, Neuropsychological impairments, ADL, A-ONE

### **DASH (Disabilities of the Arm, Shoulder and Hand) and related factors after endoscopic carpal tunnel release in patients with carpal tunnel syndrome**

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We compared the scores of DASH (Disabilities of the Arm, Shoulder and Hand) and related factors with the post surgery scores after endoscopic carpal tunnel release (ECTR) in patients with carpal tunnel syndrome (CTS-patients). Fifty-six CTS-patients' DASH scores were measured before the ECTR, one week after ECTR, and during ECTR. Numbness, pain, sense of touch, range of motion, grip strength and anxiety were assessed as the factors that might affect the DASH scores. Total DASH scores after surgery increased more significantly than those before surgery, suggesting the deterioration of subjective ability of the upper extremity. Pain, grip strength and anxiety were related to the increase in DASH scores after surgery. The results suggest that interventions treating these factors are important for the effective improvement of subjective ability of upper extremity of CTS-patients in the acute stage after ECTR.

Key words: Carpal tunnel syndrome, Endoscopic carpal tunnel release, DASH

## ◆PRACTICAL REPORTS

### **Effects of a behavioral approach for lower-body dressing on cognitive dysfunction**

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The purpose of this study was to evaluate the effectiveness of using a behavioral approach to teach a person with unilateral neglect (USN) and attention deficit disorder (ADD) to put on pants. A male in his forties with severe left-side motor paralysis who volunteered for the study had USN and ADD, and required lower-body dressing assistance due to overlooking his left-side and stopping his movement frequently. The A-B treatment single subject experimental design was used, which utilizes a behavioral approach consisting of prompting, positive reinforcement and goal planning. During the intervention phase (B), the patient received the behavioral approach in putting on pants which included 14 components. We gave him 3 prompts: indirect verbal instructions, direct verbal instructions and assistance. When he could perform each action of a given component, verbal reinforcement was provided. The goal was “to be able to put on pants by himself”. As a measurement, we counted components which he could achieve without any prompts. In order to assess differences between the A and B phases, a 2SD band method was used. During the baseline phase (A), he could achieve only 4-6 component actions by himself. During the intervention phase (B), he could achieve 9-11. The change in performance was significant, as three of the intervention scores were outside the 2SD band. The treatment produced improvement in his ability. Prompting, reinforcement and goal planning made the task clear to the subject, thus improving the ADL in cognitive dysfunction.

Key words: Unilateral spatial neglect, Attention deficit disorder, Behavioral approach, Rehabilitation, Single subject design

### **Efficacy of Simulated Presence Therapy using a family video-letter on verbally disruptive behaviors:**

#### **A case of an elderly patient with dementia**

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Verbally disruptive behaviors (VDB) refer to inappropriate and repeated vocal behaviors in patients with dementia. VDB cause deterioration in the well-being of both the patient and caregiver. Simulated Presence Therapy (SPT) is a non-pharmacological therapy that is used to treat patients with VDB. SPT stimulates feelings in patients with dementia by replicating a pseudo family member through audio- and videotapes, and providing them with comfort. In this study, we performed SPT and musical stimulation by giving a video-letter to a patient with dementia from a convalescent rehabilitation ward. The results indicate that VDB were lower both during and after SPT compared with the pre-SPT period. We concluded that SPT with the video-letter stimulated the patient's feelings more than the music stimulation, although both audio and visual stimuli were present and met the patient's psychological needs. This may have encouraged the patient to recall invaluable memories of her family.

Key words: Dementia, Behavioral and Psychology Symptoms of Dementia, Non-pharmacological therapy, Simulated Presence Therapy

### **The effects of sitting posture on arm coordination:**

#### **A pilot study**

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An evaluation of arm function and its connection to sitting posture was reviewed as a preliminary study to develop a usable evaluation for wheelchair users. We explored the effects of sitting posture on arm coordination in ten healthy subjects on a drawing test utilizing four different sitting positions. Main outcome measures were description time, handwriting area and sitting COP movement. Significant differences in handwriting ability could be attributed to differences between stable and half-sitting positions. With the three different sitting positions, our analysis showed significant correlations between description time and handwriting area, description time and sitting

COP movement, and handwriting area and sitting COP movement. The results showed that posture control significantly affected arm coordination. Thus, this drawing test is useful for the quantitative evaluation of coordinated relationship between arm function and other body parts.

Key words: Arm function, Coordination, Sitting posture, Posture control

## **Effects of a task-oriented upper extremity function approach using Aid for Decision-making in Occupation Choice (ADOC):**

### **A case report**

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In order to set goals in the OT practice for stroke patients with upper extremity paresis including components of the constraint-induce movement therapy, we used the Aid for Decision-making in Occupation Choice (ADOC). The client was a male engineer in his early fifties with right hemiparesis due to sub-acute stroke. We used the ADOC to set the following OT goals: activities of working (manipulation of a personal computer and industrial tools), and activities of daily living (using chopsticks). The client received 1-2 hours of intervention per day for the affected upper extremities. The intervention resulted in the following areas improving slightly above the minimum required for meaningful change according to the goals set by the client: upper extremity function, frequency of upper torso use, quality of movement and degree of satisfaction of the occupational goal.

Key words: Upper extremity function, ADOC, Meaningful occupation