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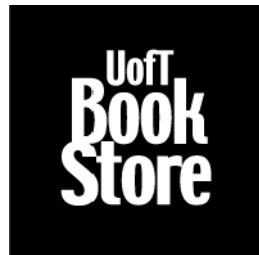
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THE 'CHESS-MATE' FOR ADULTS WITH QUADRAPLEGIA

Xena Kavoun & Leora Shuval

Abstract

Findings of research on leisure indicate a correlation between engagement in leisure activities and physical health, mental health, life satisfaction, and psychological growth for adults with and without disabilities. Unfortunately, many clients with quadriplegia report poor leisure satisfaction, which is one of the major areas addressed by occupational therapists. Current literature suggests that individuals with quadriplegia engage in board games, such as chess, using mouth sticks to point at the pieces they wish to move, and require assistance from their opponent to physically move them. Thus, the purpose of the 'Chess-Mate' is to enable individuals with quadriplegia, aged 18 and over, to independently engage in the game of chess using their neck muscles. An adjustable headband is mounted on the person's head with a long, plastic cord, extending from the center of the forehead to below the chin. The tip of the cord extends into a hook, which will be used to pick up and release individual chess pieces. At the top of each chess piece, an x-shaped attachment is mounted to facilitate latching. The chess board is equipped with a rotating disc to allow the user to access the entire board. Evaluating the device's mechanical effectiveness will involve testing its ability to lift and release each chess piece and reach all parts of the board. Conducting interviews and administering the Canadian Occupational Performance Measure, both prior to and following introduction of the Chess-Mate, will enable evaluation of client satisfaction with performance and the design of the device.

ZIPPER STABILIZER

Dori Isakow-Weiss and Melania Parente

Abstract

Fastening zippers is an essential task in maintaining independence in the self-care realm of occupation. School-aged children commonly require assistance in fastening zippers on their jackets, coats and sweaters. Children displaying fine motor difficulties as well as coordination, visual-motor integration, and manual dexterity issues are often referred to occupational therapists to enable their activities of daily living. A common framework in occupational therapy is the Person-Environment-Occupation model (Law et al., 1997), which emphasizes optimizing the fit between a person, their environment and occupation, resulting in enhanced occupational performance. The “Zipper Stabilizer” includes two clips with long lever arms and enlarged grips that attach to the bottom of a jacket, coat, sweater, or shirt with a zipper. The assistive device will hold or secure the article of clothing in place in order to provide ease in setting the zipper in place. This assistive device can be used in conjunction with a zipper latch, such as a thin string that is strong enough to zip up garments with small zipper tabs, enabling a better grasp. Being able to dress independently is a meaningful occupation and is fundamentally crucial to most people. Designing an aid that enables individuals with fine motor difficulties and decreased coordination to dress themselves validates occupational therapy’s beliefs of empowering clients with increased occupational performance. It is recommended that the “Zipper Stabilizer” be evaluated by assessing the skills acquisition through the use of the Performance Quality Rating Scale.

THE 'EASY HOOK BRA'

Tiffahny Gamage & Tina Singh

Abstract

Arthritis is a chronic condition characterized by inflammation of the joint(s) causing pain, swelling and stiffness. According to The Arthritis Society, arthritis is among the three most common chronic diseases in Canada (2002). Moreover, arthritis affects almost twice as many women as men. Many women report having difficulty dressing and completing other activities of daily living when symptoms are exacerbated. Occupational Therapists are concerned with enabling functional independence. Therefore, creating adapted devices and clothing is one method of enablement; Occupational Therapists are well suited to design such devices as they hold extensive holistic knowledge related to function. The 'Easy Hook Bra' is a compensatory device that was developed to aid women suffering from arthritis complete the stage of dressing. Clients have expressed that the small hooks that are used to close bras become very difficult to close due to the arthritis in their hands; this task becomes even more difficult during a flare up of symptoms. The 'Easy Hook Bra' has an adapted Velcro™ closure which fastens securely at the front of the bra. This piece of Velcro™ is fixed to the bra from one side and is adjustable from the other. Additionally, both shoulder straps have Velcro™ fasteners to allow proper adjustment and fastening. It is recommended that this device be evaluated by assessing improvements and client satisfaction through the use of informal interviews and questions.

THE CLAMPED LAPTOP STAND

Lindsey Markowicz and Rosalinda Yee

Abstract

Back pain is one of the most common chronic health conditions in Canada (Statistics Canada, 2006). For individuals with this condition, prolonged sitting in the typical right angle posture exacerbates symptoms (Liebenson, 2002) because of the flattening of the lumbar curve of the spine, resulting in increased pressure on the inter-vertebral discs (McKee, 2006). The device has been designed for a 28-year-old man with chronic lower back pain, whose job involves computer work while sitting for prolonged periods, leading to exacerbation of his condition. He finds relief working in a standing position; but alternatives for raised work surfaces are too expensive and impractical. The Clamped Laptop Stand has been developed as a temporary solution to enable the client to work in standing. The device is lightweight, discrete and mounted on the edge of a desk. A flat, non-slip surface for the laptop is supported by a vertically adjustable, steel stem, which is attached to the clamp on the desk. The laptop surface is flanked on three sides by a safety guard to ensure further stability and safety. A tilt adjustable keyboard tray, on which an external keyboard and mouse sit, is mounted underneath the laptop surface. The proposed device will enable the client to increase his productivity and quality of life by adapting his work environment to support his level of physical tolerance. It is recommended that the Clamped Laptop Stand be evaluated using the Canadian Occupational Performance Measure to assess client satisfaction and work performance when using the device.

SENSORY CLASSROOM SITTER

Kristina Wilson & Tammy Uppenborn

Abstract

Children with high thresholds for sensory stimulation and active responding strategies will instinctively seek sensory input in order to satisfy their need for increased stimulation (Dunn, 2001). Children with this type of processing disorder often exhibit distractibility, excessive restlessness and other socially inappropriate behaviours that can inhibit learning abilities in a typical classroom setting (Case-Smith, 2005). Research shows that sensory seeking individuals demonstrate fewer negative behaviours when this need for increased sensory input is met (Dunn, 2001). Occupational therapists may provide recommendations regarding how this need can be met to enable occupational performance within the classroom. The Sensory Classroom Sitter may be one such recommendation: its purpose is to supply vestibular-proprioceptive stimulation while facilitating trunk stability and improved posture within a classroom setting. The device is comprised of two half-sphere therapy balls joined by a ball and socket joint. The shape of the 'Sitter' allows for sufficient movement in all planes to gain proprioceptive input while containing a stable base to guard against rolling. It also features a handle that both protects against excessive leaning and acts as a method of transporting the ball between classrooms. The device will facilitate improved sitting behaviour and writing legibility thereby creating a more positive learning environment (Schilling et al., 2003). The effectiveness of the device may be evaluated through the use of the Canadian Occupational Performance Measure (COPM) with specific emphasis on classroom occupations both prior to and after using the 'Sitter', as well as through subjective reports of both teachers and students.

THE CANE HOOK

Catrin Duggan and Heather Moyse

Abstract

With the growing elderly population there is a need to address safety concerns as decreased balance and stability can lead to falls that may compromise their independence, and quality of life (Kendall, 2004). The frail elderly who are mobile but unsteady on their feet are at the most risk for falls while performing daily activities (Kendall, 2004). Occupational therapists use their expertise to enable clients in continuing their life roles in a safe manner, often prescribing mobility devices such as canes. People frequently require items within their handbag/package and may use their 'cane hand' to search through their bag while lifting the cane from the ground, or they may place their bags on the ground and lean outside of their base of support to find the item(s). Therefore, the cane is not utilized for needed support, increasing their risk for falls. Conceptualized using principles from the biomechanical and environmental theories, the Cane Hook is a light attachment with a retractable hook, anchored high on the shaft of the cane providing the cane user with a place to hang their handbag/packages. This hook accessory will free their non-cane hand, enabling them to search for the desired item without compromising their stability— avoiding harmful falls that could severely affect their independence and quality of life. This would be a good recommendation when discussing canes as a mobility device. The Cane Hook will be evaluated by the client's trial and report on effectiveness and efficiency, as well as their satisfaction with the product.

“Wii CAN PLAY”FOR CHILDREN WITH DECREASED GRIP STRENGTH

Andrea Jung and Kevin Chow

Participation in play is an important occupation for all children. Play can offer more than just pure entertainment, as it can equate to greater social inclusion, an increase in self esteem and is a key component of normal child development. In today’s society, video games are taking a greater focus of play for children. The Wii for example is a new video game console that uses a motion sensing controller to allow an individual to engage in an interactive virtual gaming world. Children with decreased grip strength may find it challenging to hold onto this video controller. This may occur in diverse populations of children with varying diseases and disorders including: Cerebral Palsy, Quadriplegia, Juvenile Idiopathic Arthritis etc. The “Wii Can Play” is a glove that allows an individual with no grip strength to hold on to the Wii controller. The child will be able to slip their hand into the glove and adjust the Velcro strap for a comfortable and secure fit. An enclosable pocket located on the palmar side of the glove functions to hold the Wii controller thus maximizing grip and preventing slippage during game-play. The purpose of the “Wii Can Play” is to enable children with difficulty holding the controller to engage in video games and participate in this occupation. It is recommended that the “Wii Can Play” be evaluated with the Canadian Occupational Performance Measure (COPM) by assessing the change in the child’s pre and post self-rating of their performance and satisfaction.

THE 'FLEXY-BACK' BATH STICK

Anita Goyal & Nadia Massi

Abstract

Bathing is a fundamental activity required for self-care. As observed by a student occupational therapist during a fieldwork placement, people living in rural, sub-Saharan African communities who have limited lower extremity function (e.g., bilateral, above-knee amputations or spinal cord injuries) often depend on caregivers for bathing; more so because the bathing skills that are taught in hospital are generally not transferable to home environments. Additionally, bathing aids that are currently being offered in hospital require significant caregiver assistance. Caregivers are burdened with numerous responsibilities; thus, considering an environmental theory, a bath aid such as the 'Flexy-Back' could increase the independence of patients with bathing and reduce their caregivers' stress. The 'Flexy-Back' is a flexible, long-handled bath stick with a hook-end and a removable sponge on the opposite end. The purpose of the aid is to allow patients to easily reach all body parts with minimal effort while bathing, and the hook-end allows patients to pick up other required objects during bathing (e.g. water bucket and/or drying towel). The 'Flexy-Back' is cost-effective and functionally superior compared to the existing products in rural, sub-Saharan Africa; is a universal aid made of durable materials to ensure longevity; and, can be mass-produced at a local level to serve the intended population. An occupational therapist would teach the use of the aid while preparing patients for discharge from hospital and would measure its effectiveness through a subjective satisfaction questionnaire. The 'Flexy-Back' increases function and decreases caregivers' burden by allowing patients to bathe more independently.

ADAPTED HANDLEBARS FOR CYCLISTS WITH CARPAL TUNNEL SYNDROME

Lisa Harvey and Laura Petit

Abstract

Cycling is an important occupation for individuals of all ages as it is used as a means of leisure, physical activity and transportation. The standard handlebar design that is sold with most bicycles spans width-wise and lies parallel to the ground. This design leads to constant weight bearing on the wrists, exposing the joints to prolonged periods of hyperextension and compression. For individuals who have been diagnosed with carpal tunnel syndrome (CTS), this positioning aggravates the carpal tunnel resulting in the exacerbation of CTS symptoms (1). Ergonomic workplace design has placed considerable emphasis on avoiding positions that aggravate CTS in order to enhance worker's productivity. As occupational therapists, we realize the importance of implementing prevention strategies into all occupations as the cumulative effect of exposure to activities that induce repetitive strain has the potential to severely impact all aspects of functioning. The proposed handlebar design will alleviate symptoms of CTS by allowing cyclists to maintain a neutral position in their forearms and wrists. The cyclist will grasp the handlebars in a mid-prone position, thereby eliminating hyperextension and compression in the joints. Handgrips will be designed using Gelfom, a vibration-reduction material that will prevent the cyclist's hands from sliding down the handlebars (2). In order to ensure customer satisfaction with this product, an online survey will be made available with each sale. The objective of the survey is to evaluate the effectiveness of the product determined by customers' perceptions of comfort, ease of use, and experience of CTS symptoms.

BOTTLE BUDDY

Alison Firestone and Tamara Schultz

Abstract

Feeding is an essential occupation for infants. It occurs as a co-occupation with caregivers and their interaction helps promote the parent-child bond. Feeding difficulties with infants born prematurely are a major occupational performance issue and occupational therapists play a significant role in enabling optimal feeding performance for this population. A technique used to facilitate feeding for premature babies is “cheek and jaw support”. This technique is used with infants who have a weak suck, poor lip seal and cheek stability, which are necessary for adequate suction. Oral support involves applying pressure to the infant’s cheeks using the thumb and index finger. With large bottles, this technique can be difficult to provide properly. The caregiver’s hands may be too small to place their fingers in the correct location, thereby causing strain holding this position and resulting in anxiety. When a caregiver’s anxiety increases, infants themselves become distressed and their feeding difficulties are heightened. The Bottle Buddy is a device that supports the positioning of a bottle to a caregiver’s hand, resulting in greater dexterity and freedom of the caregiver’s fingers to perform cheek and jaw support. The purpose of the Bottle Buddy is to enhance feeding performance by decreasing the infant and caregiver’s anxiety and increasing the effectiveness of oral support. Based on the principles of the Person-Environment-Occupation (PEO) model, the Bottle Buddy will enhance occupational performance by maximizing the P-E-O fit through modifications in these domains. It is recommended that this product be evaluated through informal interviews and observations to assess caregiver and infant satisfaction.

GRIPSTIX – CHOPSTICKS MODIFIER

Ayako Sasaki and Victrine Tseung

Abstract

Chopsticks play a significant role in feeding in some cultures, where an improper use of chopsticks is frowned upon. Children in these cultures are expected to learn how to use chopsticks properly; however, this may be of a particular challenge to children with Developmental Coordination Disorder (DCD) due to delayed development of fine motor skills. ‘Gripstix’ (Sasaki & Tseung, 2007), a chopsticks modifier, will assist East Asian children (3-7 years old) with DCD to hold chopsticks in one plane. It encourages development of radial manipulation and ulnar stabilization skills, as well as formation of an open C-shaped webspace. It is meant as a device to facilitate the transition to the use of regular chopsticks. Using the Person-Environment-Occupation Model, this device decreases task demands by helping children hold their fingers in the proper positions, thus, facilitating an optimal fit between the person and the occupation. Increased use of the chopsticks promotes attainment of strength and mobility of the radial digits. Being able to eat with chopsticks has cultural relevance to individuals with East Asian background. ‘Gripstix’ will help these children to master these essential hand skills and to engage meaningfully in the occupation of feeding. Evaluation of this device can be done by assessing the child’s use of chopsticks with and without the chopstick modifier. The Canadian Occupational Performance Measure may be administered to the parents to assess their satisfaction with the child’s performance.

THE “EASY SLICE”

Sarah Jimenez and Cindy Parker

Abstract

Functional ability is a strong predictor of life satisfaction and quality of life for older adults. Although each older adult ages differently, functional consequences of aging are consistent across a wide variety of physiological systems (Chodzko-Zajko, 2001). Stroke is one of the more common conditions affecting function in this population, leaving individuals with limited, sometimes unilateral, function (US Pharmacist, 2001). Occupational Therapists’ primary purpose is assisting people to achieve or maintain function in daily activities, including meal preparation. Using a Person Environment Occupation (PEO) approach (Law et. al., as cited in CAOT, 1997), older adults’ occupational performance in meal preparation can be optimized through changes in the interaction between the person, environment and/or occupation. The Easy Slice helps to increase older adults’ independence with cooking by facilitating the safe preparation of meals. The Easy Slice can cut, slice and dice a variety of foods with different blade options (serrated, non-serrated, etc.), designed for one-hand, unilateral use, with minimal strength required by the user. Food is held securely in place with a moveable wall by pressing the food against the opposing, stable wall on top of the cutting surface. The slicing mechanism reduces the amount of force typically required when using traditional knives, through a modified cutting board design and use of a double hinge, allowing up, down, left and right movements. Evaluation of the effectiveness of the Easy Slice can be determined by assessing functional independence in the kitchen, in conjunction with user interviews, observations and the completion of the Canadian Occupational Performance Measure (COPM) (McColl et al, 2005).

THE 'SPRING-LOADED KNEELER' FOR OLDER ADULTS WITH OSTEOARTHRITIS

Colleen Soh and Lisa Wechselberger

Abstract

Participation in religious activities is shown to have positive psychological and physical benefits for community-dwelling older adults. Religiosity has been shown to be predictive of psychological well being, self-esteem, and successful aging in this population. Participation in religious practices also predicts reductions in physical disability and mortality in older adults. Participating in religious occupations is important to many people because it provides meaning to their lives. According to the Canadian Model of Occupational Performance, spirituality is at the core of a person. For many, spirituality is highly incorporated into their productive occupations and social and cultural belonging. Osteoarthritis (OA) is a major source of disability and limitation for older adults, religious participation may be limited by pain, stiffness, and loss of mobility in the joints. Kneeling during prayer for OA clients is a difficult task and causes much pain and discomfort. This can be minimized through the use of a 'Spring-loaded Kneeler'. The kneeler is composed of a wooden box frame with a platform attached using springs. The platform is covered with high-density foam to provide support to the user. Aluminum handles are attached bilaterally to the box frame. The purpose of this spring-loaded device is to reduce the amount of effort required to stand from kneeling. The device will be evaluated on user satisfaction and its ability to enable occupation using the Canadian Occupational Performance Measure and informal client interview.

THE HAND-Y WALLET

Courtney Henderson and Stacey Marshall

Rheumatoid arthritis (RA) is an autoimmune disease that may lead to damage to one's cartilage, tendons, ligaments, and bone causing deformity, joint instability, and decreased range of motion. Joint damage within the wrists and hands has a significant impact on one's fine motor function. Using a wallet requires fine motor skills and is therefore difficult for the person with RA. The purpose of the 'Hand-y Wallet' is to promote hand function in individuals with RA by minimizing the fine motor demands required to make financial transactions. Function will be promoted according to theory grounded in the PEO model (Law et al., 1996) that recognizes that an optimal fit between the person, their environment, and the occupation corresponds to an enhanced occupational performance. Function will be optimized by promoting a match between the fine motor abilities of the person with RA to the demands of the task. The 'Hand-y Wallet' is designed with a large coin section to facilitate putting coins into the wallet. The magnetic coin grabber picks up coins from within the wallet and/or from flat surfaces while the suction cup can be used for picking up cards. Ribbon pull tabs ease the retrieval of cards. Loops on the ribbon and the zipper eliminate the need for a precise pinch. Non-slip fabric, built-up contours, and an adjustable strap make the wallet easy to grasp. The effectiveness of the 'Hand-y Wallet' can be evaluated according the change in performance and satisfaction ratings determined from Canadian Occupational Performance Measure.

“THE HANDY LETTER OPENER”

OPEN YOUR SNAIL MAIL WITH JUST ONE HAND!

Freda Goh and Joanie Kong

Individuals with upper extremity amputations often have difficulty with activities of daily living (Girdhar, Mital, Kephart & Young, 2001) and frequently report a high disability rating (Davidson, 2004). With advanced medicine and technology, more and more one-handed amputees are living independently and use assistive devices to accomplish everyday tasks. A common task of managing finances requires the opening of many bills; for most people, two hands are used to open each envelope. Commercially available electric and manual letter openers exist, but are often costly, not environmentally-friendly, and/or require the use of two hands to operate. Given the problems with existing devices, we aim to develop a safe, manual, one-handed letter opener that is more affordable and environmentally-friendly for amputees who have only one functional hand. This device is based on an envelope opener (Lage, 1995) that has a plastic pick which guides the angled blade along the envelope crease. It is modified to enable unilateral handling by mounting it on the wall, while two plastic guards are placed beside the blade to ensure safety. Using the Person-Environment-Occupation Model (Law et al., 1996), the device modifies the occupation of opening a letter through environmental adaptations to compensate for differences in the person’s abilities. This device enables a one-handed amputee to complete the simple task of opening a letter independently and gives him/her a sense of control over personal matters. Effectiveness of this device can be accomplished through obtaining subjective reports on ease of use, frequency of use, convenience, durability, and esthetics.

“THE VJ SOAPING SHOWER BRUSH”
A bendable long handle soap dispensing shower brush

Jennifer Moebs and Vanessa Lobo

Abstract

Bathing is one of the most important activities of daily living. When people lose their ability to independently bathe themselves, their sense of self-efficacy (Bandura, 1994), quality of life and privacy decreases. Many populations experience a decrease in their independence with bathing, specifically individuals with upper extremity disabilities (i.e. hemiplegia), limited range of motion (ROM), movement restrictions, bending difficulties, arthritis, and generalized weakness. Occupational therapists often recommend assistive devices, such as long-handle sponges, as best practice to help increase client’s occupational performance with bathing. The problem with current products on the market is that they require two hands to place soap on the sponge, assistance is required during bathing or the handle is not bendable. The ‘VJ soaping shower brush’ (Moebs & Lobo, 2007) increases an individual’s occupational performance, independence and ease with washing their body because the individual only requires one arm to use the device, the handle automatically dispenses the soap, re-filling is not required during bathing (the individual can bathe alone) and the bendability allows it to reach all body parts. The handle of the device holds body wash and through gravity slowly releases the soap onto the sponge as the person presses it to their body. The handle is easily adjustable to reduce the ROM necessary for typical bathing. The handle is also able to accommodate interchangeable washing surfaces. It is recommended that this device be evaluated by assessing for increased performance, satisfaction and independence in bathing through the use of the Canadian Occupational Performance Measure.

EZ KEYS

Therese Mackey and Jessica McGrath

Abstract

The use of computers is becoming increasingly prevalent in schools, home, and work settings, especially for children with disabilities (Swinth, 2005). In order to use computers independently, children require fine motor skills, including the ability to isolate finger movements, maintain grasp, and perform graded movements with appropriate force (Exner, 2005). It is estimated that approximately 10% of school aged children have fine-motor difficulties (Poole et al., 2005). Thus, many adaptive devices such as alternative keyboards, mouse emulators, and switch systems are recommended by occupational therapists to enable computer use (Swinth, 2005). Therapists have identified a need for children to transfer written work between home and school; however, adapted systems are not available. Current memory keys are small in size, ranging between 5 and 10 cm. Consequently, children who have limited manipulative and grasping abilities experience problems picking up and inserting the keys. The 'EZ Keys' product line will allow individuals who have fine-motor difficulties to independently access and use a memory key. These products consist of customized adaptations, including use of individualized grasp patterns, increased surface area, and guiding devices. These modifications will allow children to use rudimentary grasp patterns, avoid in-hand manipulation, and decrease accuracy and muscle strength required for insertion. 'EZ Keys' will make a difference in the lives of children with motor difficulties by increasing their independence and decreasing dependence on caregivers. 'EZ Keys' will make it EZ for you!

THE PORTABLE GROOMING STATION

Harsha Babani & Kelly Hugh

Abstract

Participation in self-care tasks is an important contributor to an individual's sense of autonomy and self-esteem. Grooming is an important self-care task that is often affected after an individual experiences a medical condition/procedure. Individuals who have undergone orthopedic surgery (lower extremity) or are suffering from a physically debilitating condition, such as Multiple Sclerosis, are significantly impaired in their ability to perform grooming tasks. These individuals may be unable to stand at a sink for long periods of time to groom. Inability to perform such a task can greatly affect one's quality of life and can lead to depression and dependence on care givers. Occupational Therapy can enable individuals to have increased autonomy in meaningful activities such as self-care. Environmental accommodations may help increase individuals' expectations for self-care and their ability to participate in grooming. A "Portable Grooming Station" will allow an individual to independently perform grooming tasks in bed or in a wheelchair/chair. The "Portable Grooming Station" is composed of a portable tray with removable legs, built-in sink, mirror and compartments for grooming supplies. This device will enable an environmental change that will allow a person to restore, develop or maintain their occupational potential in a purposeful activity by increasing the fit between person, environment and occupation. Hence, the "Portable Grooming Station" proposes to improve occupational performance in self-care, thereby decreasing dependence on care givers and enhancing quality of life. This device will be evaluated by administering the Canadian Occupational Performance Measure before and after device utilization.

HOOK-BRUSH

Lisa Engel & Sandie Le

Abstract

Brushing one's hair is a component of self-care activities and is often a predominant occupation in a person's life. Grooming and hair care is a medium for individuals, both with and without disabilities, to express their sexuality and personality. It is strongly linked to self-esteem and positive body image; it is a critical area of occupational performance to enable in individuals. People who have limited upper body range of motion (ROM) and strength may experience problems with brushing their hair. Traditional brushes require functional ROM in the shoulder, elbow, wrist and neck. In addition, it also requires functional grasp strength to hold and utilize the brush. Currently on the commercial market, there are limited adapted brushes available. The most commonly purchased brush is an ergonomic long handled curved brush. Unfortunately, this brush curvature is static and still requires an increased degree of ROM to brush the back of one's head. Furthermore, this may not be effective for individuals with different hair types (thick, curly, etc.). The purpose of the "Hook-Brush" is to enable individuals of differing hair types and with limited ROM and grasp strength to independently and comfortably brush their hair. This brush has varying head-to-brush arm angles, which is facilitated through a brush-neck that has a sliding tube-over-tube overlay. As the curved brush-neck extends out, the curvature of the brush-neck is increased. This curvature is easily locked into multiple angles through a spring-loaded push-button locking mechanism. In addition, the brush has built up, textured handles to decrease needed grip strength, and it has multiple detachable brush head inserts to best suit varying hair types. Evaluation of the "Hook-Brush" should include observation of the person brushing their hair and interview for subjective opinion for usability.

“I-COOK: MY STEP BY STEP GUIDE TO INDEPENDENT COOKING” SOFTWARE PROGRAM FOR ADULTS WITH COGNITIVE IMPAIRMENTS

Dana Kinoshita and Candace Crawford

Abstract

Many people achieve a sense of joy and satisfaction from engaging in the occupation of cooking. For people living with a mental illness, cooking provides them with leisure and/or work opportunities, the ability to live independently and a meaningful way to structure their time. A person living with a mental illness may experience deficits in cognitive processes (e.g. attention, memory, executive functioning) which can significantly impact their independence and functional abilities. An environmental compensatory approach has been shown to be effective in improving functional independence for people living with a mental illness who experience cognitive deficits (Velligan, Kern, & Gold, 2006). Preparing a meal can be challenging due to the number of comprehensive steps involved throughout the planning, initiating and execution stages. “I-Cook” is an interactive computer software program designed to make food preparation tasks explicit for the user. It compensates for some of the cognitive demands of cooking. “I-Cook” allows users to access simple step-by-step recipes and meal preparation tips using written, visual and auditory prompts. “I-Cook” requires the user to provide feedback to the computer in order to continue to the next step in the cooking process. Occupational Therapists would be able to introduce “I-Cook” to clients as inpatients and reinforce its continued use upon discharge to the community. This device can be evaluated by reassessing the level of satisfaction and performance with meal preparation using the Canadian Occupational Performance Measure. Informal interviews regarding ease of use, comprehensiveness and overall utility of the program would also be beneficial.

‘CARRY & PLAY’ FOR INDIVIDUALS WITH AMD

Jenn Marler & Katie Harder

Abstract

Age-related macular degeneration (AMD) leads to irreversible central vision loss due to the degeneration of the macula. AMD causes the individual to rely increasingly on their peripheral vision, and it affects 2.1 million Canadians (CNIB, 2006). When central vision is lost, the individual has difficulty performing daily occupations, such as playing cards. Currently, playing card holders either remain stationary on the table and allow the entire surface area of each playing card to be viewed, or remain in hand and can be easily manipulated into the peripheral visual field but the cards overlap. The ‘Carry & Play’ (Marler & Harder, 2007) is a hand-held card holder that allows users to view the full surface area of each card while the rest of the cards remain in-hand. The fan-like display ensures that no card overlaps with another and this allows each playing card symbol to be viewed in full regardless of symbol location and size. This hand-held device allows for the manipulation of playing cards into the peripheral visual field with ease. The ‘Carry & Play’ includes a compact light source to increase visual acuity, accommodates normal and large sized playing cards, and collapses for easy transport. This compensatory device helps to maximize residual visual capacity and can increase social participation through the occupation of playing cards. This device will be evaluated by administering the Canadian Occupational Performance Measure (Law et al., 2005) with volunteers with AMD who will be recruited from the Canadian National Institute for the Blind.

‘EASY CUTTING’ ANIMAL PAPER HOLDER

Jennifer Morin and Meredith Norman

Abstract

Scissor cutting is a skill that is used frequently by children at school and at home. Cutting helps develop and improve fine motor skills and strengthens the intrinsic hand muscles used in other fine motor activities (Exner, 2005). Many children with hemiplegia cerebral palsy (CP) have increased tone and spasticity in one limb, which limits their ability to perform in-hand manipulation required during cutting with scissors. The purpose of the design is to increase independence of children with mild-to-moderate hemiplegia CP in the bilateral task of cutting, due to difficulty manipulating the paper with their affected hand. Using the environmental theory, the design provides a compensatory strategy to maximize independence in cutting activities through the use of an adaptive device. The design consists of a curved clip that holds the paper in a horizontal position for cutting. A large surface area and lever arm is used to help children manipulate the clip by eliminating the need to pinch. The clip is mounted on a rod, which is attached to a rotating turntable. The turntable allows rotational movement of the paper to compensate for the in-hand manipulation used to direct paper orientation during cutting. The design is portable, child-friendly and can be utilized in many settings. Therapists working in rehabilitation, community and public sectors can use this device to increase a child's independence in activities involving cutting and potentially improve the child's self-esteem. The device should be evaluated using a self-report approach on the child's performance and satisfaction using the COPM.

THE ZIPPER CLIPPER

JOANNA JOHNSTON & ANN POPOWICH

Abstract

According to the Arthritis Society of Canada more than four million Canadians are affected by this debilitating disease (2002). The joints of the hands and wrist are predominantly impacted resulting in stiffness, pain and decreased ability to perform daily activities. Coat zippering requires fine motor control and can become a frustrating and painful experience. Many forms of adaptive clothing exist, however they are frequently sold only on-line and therefore difficult to try on before purchase. It is also important to recognize that clothing is a form of personal expression and the options for adaptive clothing remain limited (Guy & Banim, 2000). As such, there is a need for a device that can easily attach to an individuals existing coat. The Zipper Clipper has been specifically designed as an inexpensive and practical alternative to purchasing adaptive clothing. This subtle adaptive device easily clips to the existing zipper and utilizes magnets to secure the coat. The magnetic strips enable coat fastening by reducing strain on the joints of the wrist and hand and facilitating independence while dressing. The Zipper Clipper was developed using a compensatory approach and a biomechanical framework. The compensatory approach compensates for individual limitations by modifying the environment and/or task (Schultz-Krohn & McHugh Pendelton, 2006). A biomechanical approach is used to analyze the movement required and the task components that may be contributing to difficulty in coat fastening (Schultz-Krohn & McHugh Pendelton, 2006). It is recommended that the zipper clipper be evaluated for usability and client satisfaction by administering the Canadian Model of Occupational Performance (COPM).

THE WRIST READER

Josh Carr and John Clack

Abstract

Following a cerebral vascular accident (CVA), individuals often experience a decrease in fine motor ability on their affected side. Even a mild hemiparesis (partial unilateral paralysis or weakness) can have a significant impact on one's capacity to perform meaningful activities. As Occupational Therapists, our primary focus is to enable our client to engage in meaningful activities such as leisure pursuits. One leisure pursuit commonly identified by clients is reading. The 'Wrist Reader' enables individuals experiencing hemiparesis or hemiplegia (complete unilateral paralysis) to hold their reading material and flip pages independently. Reading aides currently available are limited, in that they require a desktop, or are cumbersome; the 'Wrist Reader' is a portable device that can be used in any environment. This device is designed using the basis of biomechanical and environmental theories. The 'Wrist Reader' will promote biomechanically correct positioning for the affected limb; this assistive device is also suitable for a variety of environments unlike similar devices on the market. Guided by these theories, the 'Wrist Reader' was designed to attach to the user's affected wrist with a cuff and will be supported using a shoulder strap to elevate the affected limb. Affixed to the cuff and strap is a flat surface designed to support a paperback novel and secure it in a manner that will enable the user to easily turn pages. The effectiveness of this device will be evaluated using the Canadian Occupational Performance Measure in conjunction with ongoing client feedback.

THE ARTHRITIS FRIENDLY CLEANING GLOVE

Julia McLean & Dana Clifford

Abstract

Arthritis is a progressive disease that currently affects four million people in Canada. Two common forms of arthritis, osteoarthritis and rheumatoid arthritis, result in inflammation in the joints of the hand creating pain and discomfort. This may interfere with household cleaning, negatively affecting an individual's productivity and ability to manage the home environment. In addition, pain resulting from continual participation in this activity can interfere with a person's ability to partake in other meaningful activities. Occupational therapists often treat clients with arthritis in the hand and may benefit from the creation of a device to enable their client's participation in household cleaning with decreased pain and discomfort. Individuals with arthritis benefit from neutral hand positioning, decreased pressure on the joints (MCPs, PIPs, CMC), and avoidance of particular hand positions (clenched fist). Optimal biomechanics for this population can be achieved through the use of the "Arthritis Friendly Cleaning Glove". The interior surface of the glove will be made of a putty-like material that will mold and maintain the natural hand contours and will support the hand in a neutral position. The exterior surface will be a water-proof rubber material fastened with pressure sensitive adhesive patterned to ensure the majority of the pressure exerted by the user is on the palm of the hand, thus decreasing the pressure on the more sensitive hand joints. The material on the exterior of the glove will result in strong adhesion between the cleaning material (sponge, dry dusting cloth) and the glove, which will reduce the need for the user to grip with a clenched fist. Recommendations for assessment include improved satisfaction with the activity of household cleaning using the Canadian Occupational Performance Measure (COPM) and the Visual Analogue Scale to measure changes in pain associated with glove use.

The ‘Helping Hand’ for Children with Cerebral Palsy Living in India

Lauren Baker & Kaili Telmet

Abstract

In India, people eat with their right hand and manually cleanse themselves after toileting with their left. This cultural phenomenon is extremely powerful and going against it is culturally unacceptable. There is a high prevalence of children with neurological and physical impairments to their right hand and, although many of these children have functional left hands, most parents refuse to allow their children to use this hand while eating. As a result feeding is a very difficult and frustrating task for the child and often results in the caregivers taking on this role. Completing this self-care activity independently is often a primary occupational therapy goal for parents and children. The ‘Helping Hand’ is designed to be an assistive device for the child’s right hand that will overcome this cultural barrier and enable the child to feed independently. It will allow parents and children to achieve the goal of feeding by providing the occupational therapist with a means to achieve this goal. The ‘Helping Hand’ is designed to fit into the palm of the child’s right hand and will be attached to an adjustable strap, to be worn around the child’s middle finger, so that can it can be used as the child grows. It acts as a ‘shovel’ or a second hand to assist the child in feeding. It is recommended that the ‘Helping Hand’ be evaluated by assessing increased independence in eating as well as client/family satisfaction using a tool such as the Canadian Occupational Performance Measure (Law et al., 1998).

DUAL RIM DESIGN: MODIFICATIONS FOR THE DEVELOPING CONTEXT

Sarah Gough & Lidia Russo

Abstract

Independent wheelchair mobility for clients with functional use of only one arm is a growing challenge in the developing world. Clients are dependent on caregivers for mobility due to an inability to self-propel in the available standard wheelchairs. Within the community these clients are dependent on family and neighbours for all activities of daily living, lack productive occupations, and are socially isolated. The purpose of this device is to modify a standard wheelchair into a one arm drive wheelchair using the 'Dual Rim Design.' Guidelines for its assembly from locally available material are provided to allow construction in the developing world. Here, wheelchairs are commonly built from a combination of various donated parts. Therefore, the proposed modification design is universal, inexpensive and sustainable. The 'Dual Rim Design' is a modification to a standard wheelchair by removing the hand rim from one side and attaching it to the other. Each wheel is then controlled through manipulation on one side of the wheelchair using the added rim to control the opposite wheel via a simple axel and ball-bearing arrangement. This device is relevant to occupational therapy (OT) practice because it enables functional independent mobility for clients who can only use one arm to propel a wheelchair. Independently mobile clients have increased potential and opportunity to participate in meaningful occupations. It is recommended that this device, and guidelines for its development, be evaluated by assessing changes in client's quality of life and independent mobility using the use of the Canadian Occupational Performance Measure.

THE ‘BRAKING BUDDY’ FOR OLDER ADULTS WITH DEMENTIA

Lucille Ayoub and Marian Bassilious-Samy

Abstract

Dementia is a clinical syndrome marked by the progressive decline in a person’s memory and cognitive function (Mihailidis, Fernie, & Barbanel, 2001). Older adults with mild to moderate dementia benefit from the use of rollators to assist with ambulation. However, rollators may place older adults at risk for falls, therefore, many falls programs include education on the proper use of mobility devices (Coleman, & Fox, 2002). An important role for occupational therapists is to enable participation in desired activities while ensuring safety is not compromised. The “Braking Buddy” serves as a memory aid and safety feature for older adults with mild to moderate dementia ambulating a rollator. The theoretical underpinning of this device is the environmental theory in which optimal occupational performance may be acquired through the use of an assistive device (Strong et al., 1996). This device is a cueing system to remind this population to activate their brakes. It is an external apparatus that can be attached to type II and III rollators. When the rollator is not in motion, a display attached to the back rest immediately projects the word “BRAKE” in bright red large letters. This serves to avoid injuries incurred while using the rollator for any purpose other than mobility without activating the brakes. This device can be evaluated through an occupational therapy pre-post assessment in which the client performs an activity as the number of times the client required cueing to activate their brakes before and after training with the “Braking Buddy”, is recorded.

SENSORY MOBILE FOR CHILDREN WITH DISABILITIES IN KENYA

Lynsay Smallman and Alysia Carpe

Abstract

Occupational Therapists (OT) are concerned with ensuring that children are given the opportunity to play, which encompasses their primary leisure and productivity occupations. OTs ensure that children receive adequate sensory stimulation to promote normal development and learning. Children with disabilities in Kenya are often not able to attend school, to work or to play with other children. These children lack sensory opportunity and thus are occupationally deprived. As children develop, they need to have opportunities to interact with a variety of senses, in order to develop mature sensory and motor learning. A sensory mobile would help to meet these needs by providing children with play experience. The purpose of this sensory mobile is to provide children with disabilities in Kenya with a variety of sensory opportunities, which they lack on a daily basis. The sensory mobile is constructed from a simple wooden frame with notches on the sides, which will allow a shelf to be placed at different heights. Attached to the shelf will be a mobile from which sensory objects will hang. The mobile allows a wide variety of different objects to be hung for the child to interact with. The objects will also be interchangeable, permitting the user to select the accessories. To measure the effectiveness of the sensory mobile, the OT can draw from ecological assessments, which focus on the child's interaction with the environment with a special focus on cultural influences, socioeconomic status, societal expectations. Ecological assessments consist of naturalistic observations, interviews and rating scales.

THE EZ MED FOR CLIENTS WITH IMPAIRED HAND FUNCTION

Sarah Laughton-Farrell and Renny Wheable

Abstract

Medication management is an important routine occupation for many individuals with varying health conditions. Challenges related to physically accessing medication can occur for individuals with conditions that impact on hand function such as spinal cord injuries, Parkinson's disease, and rheumatoid arthritis, because of motor control issues, tremors, restricted hand movement, and limited strength. It is important for occupational therapists to address medication management in these populations because of its impact on health and quality of life. Current standard dosette boxes with "pop-tops" generally require fine motor skills and control to open each compartment to access medication, limiting the types of clients who can use a dosette independently. The goal of the EZ Med is to limit the demand of fine motor skills required for individuals to access their medications through 'light touch' easy to open compartments. The design of the EZ Med is grounded in a compensatory theoretical framework to facilitate clients to reduce the physical demands of medication management through the use of an assistive device that promotes occupational performance. Evaluation of the EZ Med should occur using the Canadian Occupational Performance Measure (COPM) (Law et al, 2000) both before and after the implementation of the EZ Med to evaluate changes in client performance and satisfaction regarding medication management.

“THE VELCRO BELT CATCHER”

Kunsang Ling & Megan McCarron

Abstract

Play is one of the primary occupations for children as it promotes development of sensory integration, physical abilities, cognitive and language skills, and interpersonal relationships (Case-Smith, 2005). Children with developmental disabilities may experience decreased coordination, strength, and ability to manipulate toys and objects, resulting in restricted opportunities for play with their peers. This may have a detrimental effect on their physical and psychosocial development. It is the role of occupational therapists to enable meaningful occupation, such as play. The *Velcro Belt Catcher* aims to improve the fit between the person, environment and occupation by limiting some of the potential barriers for the child (aged 5-13) with delays in gross motor skills to be able to play catch. The *Velcro Belt Catcher* is a supportive pocket and gloves with Velcro strips. The pocket is attached to a child's waist with a padded belt and the gloves allow the child to position their hands on the pocket to guide it so that the pocket lines up with the path of the ball. The increased stability, support and surface area of the pocket may improve the ability of a child to catch a ball. To evaluate its effectiveness, children who use this device, their parents and teachers will be interviewed. Children will be asked how fun and easy the device was to use and if it helped them to play with their friends. Parents and teachers will also be asked how effective the device was in enabling the child in playing with peers.

THE 'MINI OFFICE' FOR DISORANIZED CHILDREN IN SCHOOL

Eugenia Jon & Wendy Ng

Abstract

Difficulties with organization can inhibit quality learning in elementary schools. Some children may need help in organizing their learning materials and require structure to their day in order to be able to follow instructions and keep up with the pace of classroom activities. Inadequate organizational skills due to decreased visual perception, attention, stereognosis, and ability to plan can manifest itself as disruptive or off-task behaviours in the classroom. School-based Occupational Therapists focus on a child's academic goals or functional goals. Interventions are intended to maximize a child's participation and academic achievement in class. The purpose of the 'Mini Office' (Jon & Ng, 2007) is to develop an environmental adaptation to assist children in being more organized in the classroom and be able to access their learning materials more effectively. The structural design of the 'Mini Office' (Jon & Ng, 2007) incorporates "skinny shelves" for textbooks and workbooks and "shaped holes" for common classroom objects such as ruler, scissors, and writing utensils. Sound ergonomic principles such as incorporating a reading stand and implementing a height-adjustable mechanism will be applied to accommodate individual differences and enhance the comfort and usability of the desk. Pilot testing will be recommended to evaluate the improvements of classroom learning of children in schools. Teachers' ratings of children's performance of on-task behaviours and children's subjective rating of the desk will be indicators of the usability and effectiveness of the design.

THE 'SILENT WHISTLE' FOR HEARING IMPAIRED ATHLETES

Stephanie Peacock and Nick Reed

Abstract

Occupational therapy is centred on enabling performance of meaningful activities for people of all ages and disabilities. For many, sport participation is an occupation of great meaning and importance. Involvement in sport activity can positively influence one's physical and psychological health leading to improvements in overall life satisfaction. Unfortunately, for individuals with hearing impairments, these benefits may never be realized. Individuals with hearing impairments are unable to detect auditory stoppages in play indicated by a referee's whistle inherent to team sport competition. As a result, unless accommodated by specialized hand signals performed by game officials, coaches, teammates and/or spectators, team sport participation by this population is limited. The 'Silent Whistle' (Peacock & Reed, 2007) provides the opportunity for inclusion and engagement in team sport activities for athletes with hearing impairments. Through the use of signal transmission technology, an athletic wristband equipped with a vibrating device is worn by the hearing impaired athlete during sport activity participation and is activated by a game official once a whistle call has been made. The sensory cues elicited by the wristband provide the hearing impaired athlete with the means to detect all stoppages in play without delay or overt accommodation from others. As a result, the 'Silent Whistle' (Peacock & Reed, 2007) enables autonomy in sport. Trial of the product with hearing impaired athletes while playing basketball and subjective report on if the vibration stimulus is strong enough to elicit a sensory response during play will be used to evaluate effectiveness.

THE SLIDE ACTION TOOTHBRUSH

Tasleem Dhanji and Punita Bharwani

Abstract

In western societies, such as Canada, independence is deemed as an important indicator of well-being and quality of life. Occupational therapists realize that as individuals lose aspects of their independence due to illness, trauma, age-related changes, or disability, they struggle to complete simple daily activities while maintaining their dignity. One of the most important realms of daily living includes completing self-care activities, such as brushing teeth. Brushing teeth, a taken for granted activity, entails bilateral coordination, grip strength, grasp, as well as pinch strength for set-up (Pendleton and Schuldz-Krohn, 2006). Certain diagnoses such as stroke, arthritis, parkinson's disease, traumatic brain injuries, and multiple sclerosis all impede the components needed to successfully complete the set-up and act of brushing teeth. Oral hygiene products currently on the market attempt to ease the act of tooth-brushing by focusing on single components, but fail to address the entire task including set-up, which also require coordination and strength. The slide-action toothbrush aims to increase the ease of oral hygiene by addressing several integrated components required for tooth-brushing. This product integrates the toothpaste tube into the toothbrush itself to facilitate unilateral movement. The sliding mechanism located on the handle allows gradual release of toothpaste from the tube towards bristles of the toothbrush head. The added size and weight of the handle facilitates ease of grasp for those with decreased grip strength. The slide-action toothbrush can be evaluated by assessing independence in tooth-brushing with specified populations, decreased caregiver dependence, and increased self-esteem and quality of life.

MODIFYING A PORTABLE CAR DOOR OPENER: ADDRESSING THE OCCUPATION OF DRIVING

Samantha Chui and Jenny Keresztesi

Abstract

Rheumatoid arthritis (RA) is a chronic and degenerative disease of the autoimmune system characterized by fluctuating symptoms of swelling, pain, and redness in the joints (TAS, 2006). These symptoms eventually lead to joint deterioration and deformity; therefore, protection of affected joints is of utmost importance for effective management of RA. Joint protection is provided by occupational therapy by means of environmental modifications or functional strategies to promote independence and enable meaningful activity. The purpose of this project is to modify a portable car door opener to allow a 25 year old woman with RA to safely, easily and independently unlatch and pull open her car doors. The client presents with limited range of motion at the wrist and decreased grip strength of the hand causing difficulty and pain when opening her car door. The device builds on the products currently on the market. It was designed using a developmental framework and the principles of the Ecology of Human Performance (Dunn, Brown & McGuigan, 1994). This portable and lightweight custom designed car door opener will have a built-up D-shaped handle. A lever arm comprising of a two-pronged hook will be attached to the handle at a customized angle to unlatch the door. The hook will have a rubber surface to ensure a solid grip on the door handle and to protect the car door surface. The device will be evaluated regularly using the Numerical Rating Scale (Ferraz et al., 1991) and informal interview with the client; the Canadian Occupational Performance Measure (Law et al., 1998) will also be re-administered to determine client satisfaction.

THE SOLO-WASH

Alissa Tanenbaum and Bayla Zahler

Abstract

Rehabilitation of the hemiplegic upper limb is more difficult to achieve than return of ambulation in the lower extremities (Hiraoka, 2001), with only five percent of stroke survivors who have complete paralysis regaining functional use of their impaired arm and hand (Dombovy, 1993; Kwakkel, Van Dijk, & Wagenaar, 2000). Therefore, after rehabilitation many stroke survivors are still left without the functional use of both hands, making most bilateral tasks difficult, if not impossible to perform. Dishwashing is a bilateral task requiring one hand to stabilize a dish while the other hand washes. Dishwashing is an activity of daily living (ADL) that influences one's ability to keep a cleanly home, entertain guests, and take care of one's own needs. Occupational therapists commonly work with stroke survivors, and other clients who temporarily or permanently lost the functional use of both hands, to enable their independence in meaningful occupations and ADLs. The SOLO-Wash is a device that enables individuals to wash dishes unilaterally through the incorporation of stabilizing prongs that can be used to hold plates, bowls, and cups and an attachable, stable brush and sponge. The device is made of sturdy, washable materials and can fit a variety of sink sizes. The SOLO-Wash will enable individuals without the functional use of both hands to independently wash their dishes unilaterally. It is recommended that this device be evaluated by assessing for improvement in the individual's occupational performance through the use of the Canadian Occupational Performance Measure (COPM) and an observational occupational analysis.

TABLE TETHERBALL FOR ADULTS WITH DEVELOPMENTAL DISABILITIES

Jacqueline Goncalves & Mayleen Torres

Abstract

Participation in meaningful leisure activities is an important component to one's quality of life, especially for adults with developmental disabilities. These adults are typically limited by physical and cognitive age-related changes, as well as disability-related impairments, thus hindering them from participating in the same activities as those without disabilities. As participants in adult day programs these adults often demonstrate a lack of motivation to participate in the activities provided as they tend to be uninteresting, under or over challenging, and/or non-stimulating for participants. Engagement in meaningful leisure activities can allow an individual to achieve a state of flow as well as experience feelings of belongingness, enjoyment, cognitive and physical stimulation, self-expression, and competition. Facilitating this engagement for adults with developmental disabilities will be achieved through the implementation of 'Table Tetherball', intended for use during an interactive group activity. This apparatus is composed of two balloons that are individually attached to elastic cords. These can be flexibly anchored to any standard sized rectangular table with width dimensions ranging from 30" to 60". Participants sit around the perimeter of the table, while hitting the balloon to each other as the activity's objective. 'Table Tetherball' was designed to enable active participation and social interaction, but will secondarily also provide physical, cognitive, and sensory benefits. It allows for inclusive participation in an activity that is appropriately challenging and stimulating, for participants with varying degrees of impairments. Occupational therapists can implement 'Table Tetherball' in adult day programs, and evaluate its value by assessing indices of happiness and positive engagement among adults with developmental disabilities.

‘THE SMARTSTICK’ FOR ASIAN OLDER ADULTS WITH ARTHRITIS

Agata Biazik and Tukata Lin

Abstract

Eating is a meaningful self care occupation that many individuals strive to perform independently regardless of advanced age or level of impairment. Many Asian older adults are accustomed to using chopsticks as their main feeding utensil. However, Asian older adults with fine motor difficulties of their dominant hand due to arthritis have decreased dexterity and range of motion in their fingers and find it difficult to continue using chopsticks. Instead of imposing western style utensils, occupational therapists can facilitate Asian older adults’ independence in eating by recognizing the cultural significance that chopsticks plays in their lives. Allowing Asian older adults the opportunity to retain a valued way of performing the essential occupation of feeding may contribute to their overall satisfaction and quality of life. The design of ‘The SmartStick’ (Biazik & Lin, 2007) draws upon psycho-emotional and biomechanical considerations. ‘The SmartStick’ (Biazik & Lin, 2007) is a single unit design connected in the middle by two horizontal springs. This allows for a palmar grasp rather than a traditional and more difficult tripod grasp for holding and food handling. The top spring acts to stabilize the unit while the bottom spring is flexible so that when the chopsticks are squeezed, the ends will come together and grasp items of food. Evaluation of ‘The SmartStick’ (Biazik & Lin, 2007) can be accomplished by examining client satisfaction using the Canadian Occupational Performance Measure and a meal diary listing levels of hand comfort and fatigue when manipulating various foods and textures.

THE ‘BINDER BUDDY’ FOR PERSONS WITH CEREBRAL PALSY

Trent Copp and Bianca Reyes

Abstract

Three-ring binders are common tools used in schools, workplaces, and homes. A significant amount of upper extremity fine motor coordination and strength is required to open and close the rings in these binders. Cerebral Palsy (CP) refers to a group of disorders that involves an increase in muscle tone (spasticity) in the upper and/or lower limbs. People with CP who have bilateral or one-sided upper limb spasticity may lack the motor abilities to manipulate the rings in three-ring binders. This limitation may hinder participation in productive occupations, which may contribute to reduced quality of life. The ‘Binder Buddy’ will enable people with CP to manipulate three-ring binders by significantly reducing the need for fine motor coordination and the amount of upper extremity strength required. This tool is composed of two J-shaped metal ribbons attached together by a hinge. Pegs attached to the ‘Binder Buddy’ will secure its positioning onto the middle ring and also provide resistance that will allow the opening and closing of the rings. The ribbons will be padded to provide comfort and to secure hand position. The ‘Binder Buddy’ is designed for three-ring binders that are one to three inches in width. The tool will be evaluated by assessing the ability of persons with CP to use three-ring binders with the ‘Binder Buddy’ and its effect on their participation in school, work, or other productive occupations.

THE BATHROOM SAVER BATH TRANSFER BENCH

Lindsay Jackson & Waleed Noor

Abstract

There are numerous bath transfer benches on the market. These devices enable individuals with decreased range of motion, strength, and balance to bathe with greater independence. However, current products neglect to consider all the needs of the individual as well as those of family members in their design. Most bath benches are bulky, not easily adjustable, difficult to install or remove, and require a lot of room when being stored. In addition, current transfer benches take up floor space in the bathroom resulting in limited movement of the individual, decreased use of bathroom space, and limit placement of the bench itself (due to other fixtures and objects in the bathroom). The *Bathroom Saver* considers all the needs of individuals using a bath transfer bench while maintaining safety and avoiding the need for drilling or expensive installation. The International Classification of Functioning, Disability and Health (ICF) was used as the theoretical framework guiding the development of this design. The device addresses the needs of a variety of occupational therapy clients such as those who have experienced a hip or knee replacement, stroke, ABI or other neurological impairment. It is designed to fit any bathtub and face any direction in the bathroom, making it easier to recommend or purchase. The device also adjusts easier than other products and can be removed and stored with little effort. The effectiveness of the product can be evaluated by a quick survey from individual users of the device, family members, and OTs who recommend similar products.

BANGLE BITES FOR CHILDREN AND YOUNG ADULTS SEEKING ORAL MOTOR STIMULATION

Jameela Lencucha and Julia Blood

Abstract

Many individuals with Autism Spectrum Disorder (ASD) as well as those with sensory sensitivities seek large amounts of oral/motor stimulation by chewing on non-edible objects. Critically, an individual's occupational performance may be hindered depending on where and what they decide to chew. "Bangle Bites" is a necklace for children and young adults seeking oral/motor stimulation. The product consists of a chewable necklace made of rubber material with chewy beads of different textures offering easy access to various tactile sensations and increased proprioceptive input as they can be moved in the mouth. Different colors are available to render the product aesthetically pleasing in order to increase feelings of inclusion. While "Bangle Bites" should always be used with supervision, safety features include the use of non-toxic durable material and a safety breakaway clasp. Following sensory processing theory, "Bangle Bites" are relevant to occupational therapists (OT) as they enhance an individual's occupational performance (OP) by providing an appropriate sensory alternative to meet the need for oral/motor stimulation. In turn, meaningful occupation is enabled by increasing the ability to focus, organize and remain calm as well as maximize hand-use for occupations other than for putting non-edibles in the mouth. In order to evaluate the effectiveness of "Bangle Bites" clinical observation and subjective reports from the child and parents are recommended. Use of the Canadian Occupational Performance Measure (COPM) (Law et al., 1990) is also recommended to determine changes in OP enabled through the use of "Bangle Bites".