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# Occupation-Based Leisure Interventions for Individuals with Spinal Cord Injury

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OCCUPATION-BASED LEISURE INTERVENTIONS FOR INDIVIDUALS WITH  
SPINAL CORD INJURY

by

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Advisor: Debra Hanson, Ph.D., OTR/L, FAOTA

A Scholarly Project

Submitted to the Occupational Therapy Department

of the

University of North Dakota

In partial fulfillment of the requirements

for the degree of

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APPROVAL PAGE

This Scholarly Project Paper, submitted by Jaclyn Swangstue, MOTS and Whitney Josephson, MOTS in partial fulfillment of the requirements for the Degree of Master's of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

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Signature of Faculty Advisor

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Date

PERMISSION

Title Occupation-Based Leisure Interventions for Individuals with Spinal Cord Injury

Department Occupational Therapy

Degree Master's of Occupational Therapy

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## **ABSTRACT**

The purpose of this scholarly project was to provide occupational therapists with a practical guide for implementing occupation-based leisure interventions for individuals with spinal cord injury (SCI). In recent years, the occupational therapy (OT) profession has seen a shift from a biomechanically driven paradigm back to the occupation-centered practice from which OT is rooted. Though the definition and mission of OT involves the use of occupation-centered interventions, this vision is not always evident within current treatment plans for people with a SCI diagnosis. Research has indicated that leisure participation is essential for this population due to the physical benefits and more importantly for the emotional and social benefits. This manual was created to guide OTs to address leisure engagement with individuals with SCI, ultimately resulting in higher quality of life.

An extensive literature review was completed to support the need for this product and identify areas of focus. Topics of research included: 1) etiology and incidence of SCI, 2) functional ability at each SCI level, 3) role of OT, 4) problems with current OT intervention, 5) importance of occupation-based leisure interventions, and 6) utilization of the Ecological Model of Human Performance to facilitate leisure engagement with individuals with SCI.



In order to address the needs identified through the literature review, a manual was created to assist OTs in enabling client-centered, occupation-based interventions for individuals with SCI. To provide highest level of care for today's clients, OTs need to be equipped with the correct resources for creating individualized, meaningful intervention plans with client-driven goals. This manual will assist OTs in extending the range of leisure tasks available to individuals with SCI, resulting in successful engagement and increased quality of life.

# **CHAPTER I**

## **INTRODUCTION**

In recent years, the occupational therapy profession has seen a shift from a biomechanically driven paradigm back to the occupation-based practice from which OT is rooted. Though the definition and mission of occupational therapy involve the use of occupation-centered interventions, this vision is not always evident within current treatment plans for people with a SCI diagnosis. Occupational therapists have the skills to provide services unique from other disciplines due to their expertise in task analysis and enablement of meaningful occupational engagement despite physical and environmental barriers. There is a need for reintegration of occupation-centered practice within the occupational therapy field.

A review of literature reveals that the majority of current OT interventions for individuals with SCI are preparatory in nature, focusing on mobility, ROM, and strengthening exercises (Langeveld, Post, Asbeck, Gregory, Halvorsen, Rijken et al., 2011 & Hamby, 2011). In contrast to current intervention trends, Ozelie et. al (2012) discovered that lower scores in physical independence and life satisfaction were found when more time was spent on stretching, range of motion (ROM), and strengthening, in comparison to an occupation-based protocol. There are a limited number of occupation-based protocols for individuals with spinal cord injury, making it difficult to enforce the use of occupation- and client-centered practice within the profession.

Approximately 11,000 people in the United States experience a spinal cord injury per year, typically occurring between the ages of 16 to 30 years (Atkins, 2008). Due to the drastic and abrupt lifestyle changes brought on by spinal cord injuries (SCI), the need for occupational therapy intervention to assist these individuals in returning to participation in meaningful occupations is plainly evident (Ward, Mitchell, & Price, 2007). OT plays an essential role in the rehabilitation process after a SCI in order to enhance quality of life and ensure that individuals can live a full life despite their disability.

The efficacy and importance of meaningful, occupation-based interventions is supported in research literature. In 2008, O'Brien, Renwick, & Yoshida explored the effect of leisure participation for individuals living with acquired spinal cord injury, finding it resulted in physical, social, and emotional benefits as well as increased quality of life. Ward, Mitchell, & Price (2007) discovered that individuals with SCI experience the highest long-term benefits from interventions based on 1) the use of occupation as a means to regain function, 2) participation in meaningful occupations, 3) problem solving to remove barriers to occupation, and 4) facilitation of social integration into the community.

The Occupation-Based Leisure Intervention manual was created to drive client-centered intervention plans with a focus on meaningful leisure engagement, ultimately resulting in higher quality of life for individuals with SCI. This manual enables application of client-centered, interest-guided leisure interventions through adaptation of task and environmental factors. It provides therapists with a broad range of leisure ideas and interventions to allow for leisure participation of every variety and across the

lifespan. Through use of this manual, occupational therapists have the ability to extend the range of tasks available to individuals with a spinal cord injury, ultimately improving the physical, emotional, and psychological health of the individual.

The Occupation-Based Leisure Intervention Manual is guided by the Ecological Model of Human Performance (EHP). The primary focus of this model is to increase performance skills while extending the range of available leisure tasks, with consideration of the complexity of an individual's values, interests, and context. Emphasis is placed on altering the context and task rather than viewing client's limitations as the problem. Intervention strategies look at intervention over time, addressing current participation, health and wellness, and prevention of future complications. The EHP model has guided the creation of the Occupation-Based Leisure Intervention manual to ensure adherence to the roots of occupational therapy's beliefs, values, and connection to occupation.

This manual guides therapists in providing occupation-based leisure interventions for individuals following a spinal cord injury. Chapter II encompasses an extensive literature review focusing on topics of research including: 1) etiology and incidence of SCI, 2) functional ability at each SCI level, 3) role of OT, 4) problems with current OT intervention, 5) importance of occupation-based leisure interventions, and 6) utilization of the Ecological Model of Human Performance to facilitate leisure engagement with individuals with SCI. Chapter III identifies the methodology used in designing the Occupation-Based Leisure Intervention Manual. Chapter IV is comprised of the Occupation-Based Leisure Intervention Manual, including occupation-based assessments, leisure categories, extensive task analysis, broad intervention strategies, and resources for

efficient and effective application. Chapter V includes a summary and conclusions from completion of the scholarly project.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

Due to the drastic and abrupt lifestyle changes brought on by spinal cord injuries (SCI), the need for occupational therapy intervention to assist these individuals in returning to participation in meaningful occupations is plainly evident (Ward, Mitchell, & Price, 2007). Occupational therapy (OT) plays an essential role in the rehabilitation process after a SCI (Foy, Perritt, Thimmaiah, Heisler, Lookingbill Offutt et. al. 2011; Ward, Mitchell, & Price, 2007). Improving arm and hand performance plays a major role in therapy and potentially can result in a large improvement in self-management and quality of life (Spooren, Janssen-Potten, Kerckhofs, Bongers & Seelen, 2011). Unfortunately, many occupational therapists focus on preparatory and purposeful interventions rather than the highly necessary occupation-based interventions (Langeveld, Post, Asbeck, Gregory, Halvorsen, Rijken et al., 2011). Langeveld et al. (2011) investigated the content of therapy provided by occupational, physical, and sports therapists for people with spinal cord injury, and found that 94% of therapy sessions were spent doing basic exercises. In order to distinguish occupational therapy from other disciplines and to provide holistic client care, it is essential that occupation-based interventions be implemented into occupational therapy sessions.

## **The Spinal Cord Injury Experience**

The incidence of SCI is relatively rare, affecting about 11,000 people a year in the United States. SCI's occur most often in single employed-white males with high school education, with a ratio of four injured males for every one female. This four to one ratio has been true for SCI patients for decades. The average age for an individual to acquire a SCI is 37.8 years old, and 52.6% of SCI's occurred between the ages of 16 to 30 years (Atkins, 2008). Ninety three percent of all SCI's are caused by a traumatic event. Forty seven percent of SCI's are the result of motor vehicle accidents (MVA); twenty three percent of SCI's are a result of a fall or being hit by an object; fourteen percent are a result of violence, and ten percent are due to sports-related injuries. The remaining seven percent of SCI's are from a nontraumatic onset. Nontraumatic SCI's are the result of spinal stenosis, tumors, ischemia, infection, and myelitis (Atkins, 2008).

The spinal cord is divided into four segments; cervical level (C1-C8), thoracic level (T1-T12), lumbar level (L1-L5), and sacral level (S1-S5). Individuals with tetraplegia SCI results in functional impairment in the arms, trunks, legs, and pelvic organs. Tetraplegia is defined as an impairment in motor and/or sensory function in the cervical segments of the spinal cord, which in turn results in a loss of sensation and motor functioning in the three inferior segments of the spinal cord. Paraplegia refers to motor and sensory impairment at the thoracic, lumbar, and sacral segments of the spinal cord (Atkins, 2008). The majority of paraplegic SCI patients have full use of upper extremities. Complete injury (Atkins, 2008) consists of the loss of sensory or motor function in the lowest sacral segments, whereas an incomplete injury is used only when

there is some preservation of sensory and/or motor function below the functional level and in the lowest segments of the sacral spinal cord.

The functional level for individuals with SCI is defined by the lowest segment at which key muscles are graded as a 3+ out of 5 on a manual muscle test and sensation is intact. The key muscles are those that dramatically change functional outcomes for individuals with C5-T1 level SCI are; elbow flexors, wrist extensors, elbow extensors, finger flexors, and finger abductors. Patients with a SCI at the C5 level still obtain use of elbow flexors (biceps brachii). Individuals with a C6 injury continue to have use of his or her wrist extensors, whereas a person with a SCI at the C7 level has full use of his elbow extensors (triceps brachii). Persons with a SCI at the C8 level has the ability to flex all five of their fingers (Atkins, 2008). Persons with a SCI at the T1 segment have the ability to spread their fingers due to being able to activate the finger abductor muscles.

Neural recovery during the early stages of rehabilitation is common and is likely to lead to a significant improvement in functioning. Patients with a complete SCI can strengthen muscles that are partially preserved after the injury. This gradual increase in strength results in improved functioning in daily tasks and activities. Patients with an incomplete injury have an overall better prognosis, and their recovery process is less predictable and patterned than patients with a complete SCI.

Immediately following the SCI, spinal shock is evident and all reflexes cease to function (Atkins, 2008). When spinal shock disappears, patients have a strong opportunity to regain sensory and motor function. Unfortunately as more time passes after acquiring a SCI, less recovery occurs. Most motor and sensory recovery occurs within the first six months after acquiring a SCI, and the rate of recovery is minimal after



one year. The overall life expectancy for persons with SCI remains somewhat less than for the average able-bodied population (Atkins, 2008).

Recovery after SCI typically occurs in three sequential rehabilitation settings. Immediately following the SCI, patients are typically admitted into the Intensive Care Unit (ICU), which is a form of acute care. The typical length of stay during the acute care hospitalization days is fifteen days. During the acute phase, rehabilitation is focused on the following; 1) preventing the loss of passive range of motion, active range of motion, and strength; 2) preventing the loss of respiratory functions with trunk and intercostal muscle flexibility for improved vent-weaning ability and 3) the preservation of functional hand positioning for possible neurological return in the hands (Hamby, 2011). Although occupational therapists can accomplish these goals through the use of either preparatory or occupation-based interventions, preparatory interventions are more commonly used.

Preparatory interventions that are common in the acute setting include; positioning, pain management, splinting, passive and active range of motion, strengthening, and basic activities of daily living (Hamby, 2011). Positioning is a vital part of intervention due to the high risk of SCI patients acquiring pressure sores. The basics of positioning include; keeping heels off of the bed at all times, keeping the pelvis all the way in the back of the wheelchair seat, and keeping all bony prominences from prolonged positioning. Individuals with a SCI should be repositioned every twenty minutes in order to prevent the formation of pressure sores.

Pain management is addressed for all patients with newly acquired SCI, but especially in patients with a C4-C7 injury due to the increase in shoulder pain from scapular immobilization. Pain management in therapy entails requesting medication prior

to therapy session, increasing joint mobility using range of motion strategies, and being consciously aware of the high likelihood of fractures, shoulder dislocations, and rotator cuff tears.

Another preparatory intervention for occupational therapists is splinting. This intervention is most common for patients with a C1-C7 injury, due to their inability to use their hands on a regular basis. The splints are often donned before the patient goes to sleep, in order to prevent the flattening of the palmar arch and to maintain functional hand range of motion and positioning. The splint should be free of any sharp or protruding edges in order to prevent the formation of pressure sores.

Basic activities of daily living in the acute phase consist of grooming and hygiene using a universal cuff, built up, or extended handles. Feeding and drinking are also assessed and completed through the use of long straws, universal cuffs, and built up handles on eating utensils. Due to the severity and unfamiliarity of conditions for SCI in the acute rehabilitation phase, therapy is often limited and focused on preparatory interventions rather than occupation-based activities.

The inpatient rehabilitation phase often follows the acute rehab phase. The typical length of stay for patients with a SCI in an inpatient setting is forty four days. In this setting the occupational therapy interventions begin to be more client-centered and occupation based. Inpatient rehabilitation programs typically consist of several hours of occupational, physical, and speech therapy every day, which often results in each discipline having about an hour to an hour and a half of therapy a day with each patient. Occupational therapy interventions often begin with learning how to get dressed, how to eat and groom oneself, and how to perform daily tasks such as cooking. During the

rehabilitation process the patient also becomes more familiar with how to maneuver in and out of his or her wheelchair as well as mastering bed mobility. For those SCI patients that have supportive families and support systems, caregiver training also occurs during this part of the rehabilitation process. (Hamby, 2011).

Before the patient can be discharged from an inpatient rehabilitation setting, modifications are essential that the setting and living situation they are returning to has been modified in order to promote occupational participation and performance. The occupational therapist will evaluate the patient's home and provide suggestions on how to make appropriate modifications. Typical modifications include door-widening, a wheelchair ramp at at least one entrance into the home, main level accessibility, appliances and instruments at a height obtainable to the patient in a wheelchair, and bathroom modifications such as adaptive equipment and adequate space. Once the patient's living quarters are deemed safe and useful to the patient, the patient is able to return home.

Once the patient is discharged from inpatient rehabilitation, the next step of the rehab process is outpatient/community-based therapy. Outpatient therapy occurs until the patient is able to accomplish all activities of daily living independently and as confidently. Typical occupational therapy outpatient sessions are focused on transportation, hand functioning, driving, educating and introducing assistive technology (Craig, 2015).

### **Precautions and Barriers to Practice**

There are many precautions and barriers to consider when working with a vulnerable population such as individuals with newly acquired spinal cord injuries. With

the mean age of SCI patients rising in recent years, clinicians also need to anticipate pre-existing chronic conditions and diseases that are likely to complicate rehabilitation (Dijkers and Zanca, 2013). These prior conditions may include obesity, heart disease, low vision and many more. Not only are SCI patients more likely to have a pre-existing chronic condition, they are also more susceptible to obtain hospital acquired infections, while also having other injuries that may have incurred at the time of SCI, such as organ damage and injured extremities. (Dijkers & Zanca, 2013).

Dijkers and Zanca (2013) investigated the behavioral and physical factors that complicate treatment sessions. Of 1376 individuals with traumatic SCI admitted for initial rehabilitation, the most common physical disruptions to therapy consisted of 1) pain, 2) fatigue, 3) spasticity, 4) other medical conditions, 5) hypostatic orthotension, 6) poor respiratory functioning, 7) bowel or bladder accidents, 8) orthoses, 9) wounds or required wound care, 10) inability to bear weight, 11) autonomic dysreflexia, and 12) required surgical precautions. The researchers also found numerous behavioral barriers that negatively influenced treatment sessions including: 1) cognitive deficits requiring psychological support, 2) language or communication barriers, 3) behavioral outbursts, 4) cultural issues, or 5) refusal of therapy altogether. The study concluded that these physical and behavioral barriers complicated close to one third of therapy sessions-most often during occupational and physical therapy. Due to these complications patients' overall lengths of stays were increased, and overall rehabilitation progress was slowed (Dijkers & Zanca, 2013).

Body weight can also play a role in the recovery of individuals with SCI. Tian (2013) found that paraplegic patients that were a healthy weight demonstrated

remarkably higher levels of independence at rehabilitation discharge on the functional independence measure (FIM) scale. The researchers also found that patients that were in the obese weight category required more hours of occupational therapy than all other weight groups. The researchers associated this finding to increased difficulty completing activities of daily living (ADLs) with adequate independence as well as demonstrated difficulty with maneuvering and mobility. Patients that were slightly overweight demonstrated the best progress one year post-discharge from the rehabilitation setting. The underweight category was found to experience pressure ulcers more than any other weight group, and often refused therapy sessions due to these pressure ulcers. Overall the study concluded that patients that are a healthy weight or slightly overweight demonstrated the best functional outcomes at discharge, and one year-post discharge (Tian et al 2013).

Once an individual has acquired a SCI, they become more prone to life-threatening conditions including 1) autonomic dysreflexia, 2) pressure ulcers, 3) respiration issues, 4) orthostatic hypotension, 5) deep vein thrombosis (DVT), 6) spasticity, and 7) heterotopic ossification (Atkins, 2008). Autonomic dysreflexia consists of a sudden and dangerous increase in blood pressure. Autonomic dysreflexia occurs in individuals with a SCI at the T6 level and above and can be life-threatening in some conditions. This condition occurs in response to an unopposed sympathetic response to noxious stimuli such as a distended bladder, urinary tract infection, bladder or kidney stones, fecal impaction, pressure ulcers, ingrown toenails, and pain. The main symptoms for autonomic dysreflexia is one pounding headache and hypertension (Atkins, 2008).

Opposite of autonomic dysreflexia, orthostatic hypotension is a sudden drop in blood pressure which occurs when a person with a SCI T6 and above obtains an upright position. Due to an impaired autonomic regulation, there is a decrease in blood returning to the heart, commonly because it pools in the lower extremities. Light headedness and dizziness are the most common symptoms of orthostatic hypotension (Atkins, 2008).

Pressure ulcers are a common problem for all individuals with SCI. The majority of individuals with SCI lack the sensation in their perineal area that reminds them to shift in their seat, which after time results in a pressure sore. Depending on the level of injury, pressure can occur at any bony prominence on the body and result in skin breakdown and a potential pressure sore (Atkins, 2008). Pressure sores require extensive treatment and cleaning in order to heal, and can therefore limit the interventions provided by occupational therapy.

Due to impaired autonomic regulation and subsequent pooling of blood in the lower extremities, individuals with SCI are at greater risk for acquiring a blood clot in the lower extremities, pelvis, or lower abdomen. Blood clots in these regions of the body are known as deep vein thromboses (DVT). If a DVT does occur, a patient is ordered to strict bedrest, therefore ceasing most occupational therapy sessions. Due to all of these dangerous conditions, therapy sessions for individuals with SCI are often interrupted or cut short due to complications (Dijkers & Zanca, 2013).

### **Role of Occupational Therapy**

According to the Occupational Therapy Practice Framework: Domain and Process (3rd ed.), occupational therapy is “the therapeutic use of everyday life activities (occupations) with individuals or groups for the purpose of enhancing or enabling

participation in roles, habits, and routines in home, school, workplace, community, and other settings” (American Occupational Therapy Association, 2014). Occupational therapy practitioners design client-centered, occupation-based intervention plans in order to facilitate clients’ engagement in valuable occupations despite illness, injury, disease, impairment, disability, or participation restriction. They use knowledge of the transactional relationship between people, occupations, and contextual factors to provide a just-right challenge in order to extend the range of tasks and promote successful performance of meaningful occupations. Occupational therapy services include habilitation, rehabilitation, and promotion of health and wellness for a wide range of populations, built on the foundation that occupation has the power to heal (American Occupational Therapy Association, 2014).

Occupational therapy intervention for people with spinal cord injury follows a set of general guidelines due to the predictability of function loss according to injury level as discussed previously. These guidelines are to be incorporated within an individualized treatment plan to encourage client-centered practice. Practice guidelines for treating adults with spinal cord injury follow a general protocol of referral, evaluation, care plan and goal development, intervention implementation, discharge, and follow-up (Radomski & Latham, 2008). Occupational therapists incorporate many variables within an intervention plan, including 1) patient and family education, 2) self-efficacy and self management skills, 3) facilitation of participation in meaningful activities, 4) restoration of roles in the home and community, and 5) modification of the discharge context for a smooth transition home (Radomski & Latham, 2008).

Though the definition and mission of occupational therapy involve the use of occupation-centered interventions, this vision is not always evident within current treatment plans for people with a SCI diagnosis. Langeveld, et al. (2011) conducted a study to identify the most frequent therapy interventions for patients following an SCI, outlining the differences between physical therapy, occupational therapy, and sports therapy in the rehabilitation setting. The researchers found that 93% of the treatment sessions and 94% of the total recorded therapy time consisted of only mobility and self-care interventions. The authors found that the majority of time spent in therapy focuses on muscle power, walking, and hand rim wheelchair mobility. This is highly important to occupational therapy practice because it expresses the lack of occupation-based interventions that are being provided for this population. Recognizing that exercise therapy is the most frequent therapy for all disciplines suggests that occupational therapists need to provide more occupation-based treatment to stand apart from other disciplines.

One of the immediate impacts experienced by clients following a spinal cord injury is the impaired ability to complete basic self-care tasks, including eating, dressing, grooming, and toileting (Ozelie, Gassaway, Buchman, Thimmaiah, Heisler, Cantoni, Foy, Hsieh, Smout, Kreider, Whiteneck, 2012). These areas are immediately addressed within the scope of occupational therapy in order to help clients regain independence with their basic self-care needs. In order to regain these functional abilities, occupational therapists utilize a variety of preparatory, purposeful, and occupation-based approaches to regain these functional abilities. Ozelie et al. (2012) conducted a study comparing the efficacy of specific occupational therapy inpatient rehabilitation interventions with functional



outcomes post spinal cord injury. Interventions for participants in this study were chosen based on patients' level of injury and desired functional goals with the purpose of maximizing functional independence. The authors deduced that basic self care interventions including feeding and grooming were necessary for increased independence with patients with higher motor complete injuries, whereas patients with less severe injuries were able to participate in higher-level functional activities such as home management and toileting. Interventions were additionally designed to address improvement of community reintegration, increased social participation, and overall quality of life. Education on specific topics such as pressure ulcer avoidance and shoulder joint maintenance was provided for those individuals at the risk of further medical complications (Ozelie et al., 2012).

The findings from this study revealed that higher physical independence scores and FIM level gains were achieved following an occupation-based intervention process (Ozelie et al., 2012). This included hands on practice with lower body dressing, home management skill training, clothing management, toilet hygiene, manual wheelchair mobility, and bathing. In other words, in order to learn to ride a bike, one needs to ride a bike; in order to improve with dressing, a patient must practice dressing. Interventions focused on stretching/ROM, communication, upper body dressing, and classes were associated with lower physical independence scores. Additionally, lower scores in life satisfaction were found with increased time spent on stretching/ROM and strengthening (Ozelie et al., 2012). This emphasizes the crucial importance of utilizing occupation-based interventions with this population in order to improve functional performance of necessary, daily tasks.

Sledziewski, Schaaf, & Mount (2012) reiterated this finding through investigation of the efficacy of the use of robotics for treating UE dysfunction in patients with spinal cord injury resulting in tetraplegia. This systematic review of the efficacy of robotic therapy on patients with a hemiparetic UE found that robotic rehabilitation resulted in increased motor control, however was not consistent with functional improvements or gains in self care independence (Sledziewski et al., 2012). This further emphasizes the need for occupation-based, functional interventions in addition to repetitive movement therapy for increased motor control, as this alone does not always transfer to an increase in functional performance, which is needed for an increase in independence.

### **Importance of Occupation-Based Leisure Interventions**

In recent years, the occupational therapy profession as a whole has seen a shift from a biomechanically driven paradigm back to the occupation-centered practice from which occupational therapy is rooted. With this change has come a drive for increased research and evidence to support the work of occupational therapists within the medical field. This current evidence-based focus has contributed to enlightening findings. Ward, Mitchell, & Price (2007) conducted a semi-structured interview to gain an understanding of the social and occupational lives of adults living with spinal cord injury during the years following therapy. Participants experienced the highest long-term benefits from interventions based on 1) the use of occupation as a means to regain function, 2) participation in meaningful occupations, 3) problem solving to remove barriers to occupation, and 4) facilitation of social integration into the community (Ward, Mitchell, & Price, 2007). Additionally, Gustafsson, Mitchell, Fleming, & Price (2012) emphasized the importance of holistic, occupation-based goal setting in order to give clients a sense

of control over their progress. This in turn led to increased motivation, accountability to goal achievement, and increased understanding of the role of OT.

In 2008, O'Brien, Renwick, & Yoshida explored the benefit of leisure participation for individuals living with acquired spinal cord injury. Participants experienced improved quality of life as a result of engagement in a similar leisure routine as pre-injury. This success was contributed to adaptation of current tasks or identification of new hobbies in which to participate. One participant stated that "For me it would be more painful not to be active than to be active and have to put up with lots of hassles," proving the crucial importance of a healthy occupational leisure routine to overall life satisfaction and well-being. Participants emphasized the importance of leisure participation for the physical benefits and more importantly for the emotional and social benefits for themselves and others (O'Brien et al., 2008). These studies contribute to the pool of recent research, which is directly applicable and to the efficacy of occupation-based practice with this population.

A wide array of evidence pertaining to specific occupation-centered interventions has recently surfaced. O'Brien, Renwick, & Yoshida (2008) listed numerous options for leisure activities identified by individuals with paraplegia, including adapted photography (utilizing a specialized wheelchair mounted tripod), wheelchair basketball, wheelchair rugby, reading, sailing, swimming, or involvement in social groups such as the paraplegic hunting club. Certain hobbies where adaptations were not feasible could be made possible by modifying the role within the task, such as teaching guitar rather than playing (O'Brien, Renwick, & Yoshida, 2008). In recent years, new research has taken things a step further, by providing specific instructions for therapists when adapting these tasks in

order to maximize independence for clients. Hreha & Snowden (2011) outlined specific adaptation options for enhancing accessible cell phone usage for clients with spinal cord injury, as this has become an essential occupation for many people in today's society. Research studies such as this, are highly important for occupational therapists in order to share ideas regarding effective and evidence-based methods for implementing occupation-centered interventions.

There is however, a limited number of occupation-based protocols for clients with spinal cord injury, making it difficult to enforce the use of occupation- and client-centered practice within the profession. Occupational therapists provide services unique from other disciplines due to their expertise in activity analysis in order to promote re-engagement in meaningful activities of a client's choice despite physical and environmental barriers. This includes educating clients on available adaptation and accessibility options, modifying tasks based on injury level, and assessing client factors, which facilitates success within the person, environment, and occupation transaction (Hreha & Snowden, 2011). To provide highest level of care for today's clients, occupational therapists need to be equipped with the ample resources for creating individualized, occupation-centered intervention plans with client-driven goals.

### **Ecological Model of Human Performance**

The interaction between person and the environment and the ultimate effect on human behavior and performance is highlighted in the Ecological Model of Human Performance (EHP) (Turpin & Iwama, 2011). The overarching goal of the EHP model is to expand the range of tasks available to the person. For individuals with a newly acquired SCI, the amount of tasks they are able to participate are initially limited due to

diminished motor and sensory functioning, precautions and medical conditions, and an overall lack of resources and supports on how to reintegrate into the community. By following the four main constructs on the EHP model, an individual with a SCI is able to participate in many meaningful tasks that before appeared unobtainable.

There are four important constructs within the EHP model- person, task, context, and human performance (Turpin & Iwama, 2011).. EHP terminology differs from other occupational therapy practice models in the sense that task and context are used instead of occupation and environment, respectively .

The first of the four constructs in the EHP model is context. The two presumptions associated with context are as follows, 1) the environment expands beyond just the physical environment, and 2) the environment has the ability to shape task performance (Turpin & Iwama, 2011). The four contexts present in the EHP model include physical, social, temporal, and cultural. By expanding the overall definition of environment, occupational therapists can better understand the interdependent relationships between the person and the environment. For an individual with SCI, the environments in which they are able to access can sometimes be limited due to various barriers. By altering the environment in order to support task performance, the individual is sure to experience success while participating in leisure tasks.

Following context, the second construct in the EHP model is person. Through the lens of the EHP model, individuals are seen as both unique and complex beings. There are numerous variables that contribute to the uniqueness of an individual; values, interests, perceptions, personal experiences, as well as sensorimotor, psychosocial, and cognitive abilities (Turpin & Iwama, 2011). These variables influence the types of tasks

that individuals choose to participate in as well as how well the individual performs the task. In regards to an individual with a SCI, these person elements play a major role in determining which tasks they are able to take part in. For sensorimotor purposes, this determines which muscle functions will be utilized and conditioned while participating in certain leisure tasks. The psychosocial element addresses how each task is improving the mental and emotional well-being of the person. These person variables are repeatedly influenced by the person's four contexts.

The third construct of the EHP model is task. The primary goal of the EHP model is to expand the number of tasks available to a person (Crepeau, 2011). As mentioned above, for a person with SCI, the number of tasks in which they can initially participate in may appear limited. The tasks in which individuals participate in can be limited by the individual's context as well as by various physical and emotional barriers. The fourth and final construct of the EHP model is human performance which is defined as the result of the interactions between the person, context, and task.

In addition to the four primary constructs, EHP also includes five categories of therapy interventions used to increase task performance (Turpin & Iwama, 2011). These five intervention strategies include; establish/restore, alter, adapt/modify, create/promote, and prevent. Developing or rehabilitating an individual's skills and abilities can be conceptualized as "establishing or restoring" abilities. For individuals with a SCI, the establish/restore intervention strategy is present when working to strengthen muscles that may have been compromised or weakened as a result of a loss of motor functioning. Common muscles groups that are targeted include shoulders, elbows, wrists, and hands.

The second occupational therapy intervention strategy mentioned in this model involves altering the environment. Alter is defined as changing the physical environment in order to increase task performance for the individual. For example, an individual with a SCI may want to learn how to participate in adapted kayaking. If the individual demonstrates difficulty mastering the skills in a lake, it may be easier to acquire the necessary skills in a pool and then increase the difficulty.

The third strategy involves adapting or modifying the task. This is defined as adapting either the contextual features and/or the specific demands of the task. For individuals with SCI, as with any other disability, the adapt/modify intervention strategy often includes incorporating the use of assistive technology in order to assist with task completion.

The fourth intervention strategy aims to prevent the occurrence or development of maladaptive performance in any context. For the SCI population in regards to occupational therapy, this includes preventing barriers from interfering with therapy. Common barriers for individuals with SCI include development of pressure sores, autonomic dysreflexia, orthostatic hypotension, spasticity, and many more. By preventing these occurrences therapy sessions will be more successful and client's will associate more positive feelings while participating in therapy.

The fifth and final intervention strategy is create/promote. This intervention strategy looks at creating opportunities that promote adaptable performance in a variety of contexts. This is evident by incorporating universal designs into buildings and transportation, such as providing ramps and handicap bathrooms. For leisure purposes for individuals with SCI the goal is to promote inclusiveness. This can be done by

advocating for parks and community centers to offer events that are wheelchair accessible and promote equality among individuals with SCI and their able bodied peers.

Due to the drastic lifestyle changes following a spinal cord injury, there is a need for a product that expands the amount of meaningful tasks available to these individuals. Incorporating leisure-based interventions into occupational therapy sessions has been proven to improve the overall quality of life and well-being for these individuals. An Occupation-Based Leisure Intervention manual following the constructs of the EHP model was designed to promote accessible, efficient, and creative methods for incorporating meaningful leisure interventions into the therapy process.



## **CHAPTER III**

### **METHODOLOGY**

Following the event of a spinal cord injury (SCI) an individual is faced with many lifestyle changes which results in a need for occupational therapy (OT) in order to regain participation in previous meaningful occupations (Ward, Mitchell, & Price, 2007). The occupational therapy profession strongly values the incorporation of occupation-based treatment in therapy sessions; however, the majority of occupational therapy sessions for individuals with SCI are preparatory in nature (Langeveld et al., 2011). Leisure participation has been found to result in physical, social, and emotional benefits as well as increased quality of life for individuals living with an acquired spinal cord injury (O'Brien, Renwick, & Yoshida, 2008). This product manual was developed to serve as a guide in providing occupation-based leisure interventions for individuals with SCI.

Based on the current occupational therapy literature, the majority of OT interventions focus on self-care interventions, range of motion, muscle power, hand-wheelchair mobility, and walking (Langeveld et al., 2011). Occupational therapy tends to fall into a biomechanical paradigm when treating individuals with SCI. Therefore, our product focuses on interventions that emphasize actual occupational performance rather than an emphasis on underlying components. The occupation of leisure can be conceptualized in several ways. A review of leisure assessments revealed various

methods of categorization. Specifically, the Modified Interest Checklist was utilized to determine several differing categories of leisure. From the many categories provided in the Modified Interest Checklist, five were selected to be incorporated into the product; at-home, active sports, creative, social, and outdoor pursuit leisure.

The Ecological Human Performance (EHP) model was utilized to serve as a guide for each leisure intervention analysis. Following a SCI an individual can often feel physically limited from participating in their previous meaningful occupations. The goal of EHP is to expand the range of tasks available to the person by changing their context in order to support performance. EHP considers a variety of contexts, including; physical, social, cultural, and temporal. This model also looks at the psychosocial and sensorimotor person components which are essential to address following an abrupt lifestyle change such as a SCI. The EHP model also provides a variety of intervention strategies used to increase task participation; establish/restore, create/promote, alter, adapt/modify, and prevent.

The product was constructed using the concepts of the EHP. For example, the product begins with the area of assessment. Because identifying the prioritized task is the first step of the process, our manual includes attention to task identification as a first priority. Three different assessment tools are described which might be used to identify and prioritize leisure interests. In addition, the EHP involves extensive task analysis and analysis of personal variables as a means to broaden intervention strategies.

The three person components of the EHP model include; sensorimotor, psychosocial, and cognitive functions (Turpin & Iwama, 2011). For individuals with SCI, there cognitive functions are not altered as a result of the disability, therefore it is not

included as a category in our manual. Our manual looks at improving both the sensorimotor and the psychosocial aspects of the person. Sensorimotor functions are improved by strengthening motor functions that may be impaired or lost as a result of the injury. Common sensorimotor functions for this population include grasp, upper extremity strength, fine motor control, and gross motor control. The psychosocial aspect of our manual looks at how the leisure task will improve the person's overall well-being. This often includes reintegration into meaningful activities, improved confidence and self-esteem, and an overall sense of belonging. These person components are taken into consideration in each of the five intervention strategies of EHP.

In the EHP model, there are five intervention strategies. These intervention strategies serve as a guide for each of the leisure tasks present in our manual. The create/promote interventions strategy is aimed to promote inclusiveness and equality for individuals with SCI and their able bodied peers. This strategy looks at advocating for universal design tactics for all environments as well as creating events that all people regardless of a disability are able to attend. The alter intervention strategy is designed to change the environment in order to promote occupational engagement and performance (Turpin & Iwama, 2011). In our product, the alter strategy is often used by providing various different contexts in which the task could be completed if necessary in order to promote successful performance. The adapt/modify intervention strategy works to adapt either the contextual features or the specific demands of the task. For persons with SCI, this includes the use of adaptive equipment and assistive technology. The establish/restore intervention strategy looks at strengthening muscle groups and motor functions while completing occupational tasks (Turpin & Iwama, 2011). For our product's

purposes, cervical levels six, seven, and eight were primarily addressed. For an individual at one of these levels, the most common muscle functions used include finger flexion/extension, wrist flexion/extension, pronation/supination, grasp, and shoulder flexion/extension. The final intervention strategy in the EHP model is prevent (Turpin & Iwama, 2011). In our product, the prevent strategy is used in order to highlight precautions associated for the SCI population while performing each specific task.

By constructing the product around EHP, it is clear that occupation-based interventions can be completed with ease by a variety of occupational therapists in various types of treatment settings, such as; inpatient, out-patient, community, and at-home therapy. Upon utilizing this client-centered and occupation-based product with clients who have difficulty participating in leisure occupations due to adjusting to new physical circumstances following a SCI, successful re-integration into meaningful leisure activities can be achieved. This product illustrates that occupational therapy can easily incorporate leisure-based occupations into everyday therapy sessions despite the therapy setting.

## **CHAPTER IV**

### **PRODUCT**

This manual was created to assist occupational therapists with creative intervention planning for individuals with a spinal cord injury. Due to the current trend of providing preparatory, biomechanically-driven interventions for this population, there is a need for a practical resource to guide therapists in occupation-based intervention planning. This manual enables application of client-centered, interest-guided leisure interventions through adaptation of task and environmental factors. The purpose of this manual is to extend the range of tasks available to individuals with a spinal cord injury, particularly for individuals with limited function due to their level of injury. Through use of this manual, occupational therapists have the ability to enhance quality of life and ensure that individuals can live a full life despite disability.

The manual is structured to serve as a practical guide for therapists, including occupation-based assessment tools, leisure interventions sorted by category, and additional resources to support occupational success. The first section of this manual includes occupation-based assessments such as the Modified Interest Checklist or COPM to assist with prioritizing an individual's needs and wants, as emphasized by the Ecological Model of Human Occupation. Leisure ideas in this manual are sorted into the following categories: 1) Outdoor Leisure, 2) At Home Leisure, 3) Creative Leisure, 4)

Active Sports, and 5) Social Leisure. This broad range of categories allows for leisure participation of every variety and across the lifespan. These categories are further broken down into specific leisure options such as fishing, photography, or golf.

An extensive task analysis was conducted for each leisure activity to address physical, social, cultural, temporal, sensorimotor, and psychosocial factors that may be inhibiting a person's participation. Broad intervention strategies are provided to enable successful occupational performance in the areas of 1) create/promote, 2) alter, 3) adapt/modify, 4) establish/restore, and 5) prevent. Specific therapist tools and helpful resources are provided for comprehensive and efficient application of the intervention ideas.

This manual was created to drive client-centered intervention plans focused on meaningful leisure engagement, ultimately resulting in higher quality of life for individuals with SCI. To provide highest level of care for today's clients, OTs need to be equipped with the correct resources for creating individualized, meaningful intervention plans with client-driven goals. This manual will assist OTs in extending the range of leisure tasks available to individuals with SCI, resulting in successful engagement and increased quality of life.

*Occupation- Based Leisure  
Interventions for Individuals with  
Spinal Cord Injury:  
A manual for occupational therapists*



*Jackie Swangstue, MOTS  
&  
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## **Importance of Occupation-Based Assessment Tools**

The use of evidence-based assessment tools assists occupational therapists in justifying their choice of interventions, measuring progress, and advocating for the efficacy of the profession. There is a need for increased use of occupation-based assessment tools to drive the use of occupation-centered interventions in practice. The use of an occupation-based assessment tool allows therapists to more effectively track progress within meaningful leisure tasks, which in turn advocates for the efficacy and uniqueness of the OT profession.

A key component of the Ecological Model of Human Performance is that intervention should be driven by what the individual wants and/or needs (Dr. H's book). A sequence of therapy is proposed, beginning with identification of a person's prioritized needs and wants and followed by analysis of those prioritized tasks (Turpin & Iwama, 2011). The following assessment tools provide a structured and evidence-based method to assess client-identified prioritized tasks.

Information regarding the purpose, population, and administration time of applicable assessment tools are listed on the following page to assist therapists in choosing an appropriate assessment tool based on an individual's needs. Resources and attached forms are included to encourage simple and efficient implementation.

## Occupation-Based Assessment Tools

<p><b>Modified Interest Checklist</b></p>	<p><b>Purpose:</b> Used to assess a client’s leisure interests and engagement level regarding past, present, and future activities</p> <p><b>Type:</b> Self-report checklist</p> <p><b>Population:</b> Adolescents or adults</p> <p><b>Time to Administer:</b> 10-20 minutes</p> <p><b>Resource:</b> <a href="http://www.cade.uic.edu/moho/default.aspx">http://www.cade.uic.edu/moho/default.aspx</a> *Create account and download for free! (also attached)</p>
<p><b>Canadian Occupational Performance Measure (COPM)</b></p>	<p><b>Purpose:</b> Used to detect change in an individual’s perceived occupational performance over time within the areas of self care, productivity, and leisure</p> <p><b>Type:</b> Semi-structured, interview-based rating scale</p> <p><b>Population:</b> All populations across the lifespan</p> <p><b>Time to Administer:</b> 30-40 minutes</p> <p><b>Resource:</b> <a href="http://www.caot.ca/copm/index.htm">http://www.caot.ca/copm/index.htm</a></p>
<p><b>Patient-Specific Functional Scale</b></p>	<p><b>Purpose:</b> Used to gain insight into an individual’s self-rated top three priority activities and self-perceived activity limitation in these activities.</p> <p><b>Type:</b> Self-report questionnaire</p> <p><b>Population:</b> All populations across the lifespan</p> <p><b>Time to Administer:</b> 5 minutes</p> <p><b>Resource:</b> <a href="https://www.tac.vic.gov.au/files-to-move/media/upload/patient-specific.pdf">https://www.tac.vic.gov.au/files-to-move/media/upload/patient-specific.pdf</a> (also attached)</p>

# OUTDOOR PURSUITS LEISURE

- Fishing
- Canoeing/Kayaking
  - Car Care
  - Ice Fishing



# Fishing

## Outdoor Pursuits Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** Fishing pole, hook, bait, tackle box, fishing license (can typically be purchased at a local Walmart)
- **Work Environment:** Accessible area, outdoors, from a boat or dock
  - Find a fishing location near you at <http://takemefishing.org/fishing/map/>

#### Social

- **Micro:** Complete individually or with family and friends, family lake day
- **Macro:** Fishing clubs and organizations listed by state - <http://www.aa-fishing.com/fishing-organizations.html>; International Game & Fish Association - <http://www.igfa.org/>

#### Cultural

- **Associations:** Common American cultural tradition
- **Expressions:** Family bonding activity, outdoor culture, appreciation of nature

#### Temporal

- **Duration and Sequence:** 45 minutes - 2 hours to complete task depending on personal preference. Steps of task: find a location, gather gear/supplies, rig lines, bait hook, fish!
- **Age and Stage:** Ages 7 and up; outpatient, home, or community setting

### Person Elements of Task

**Sensorimotor:** Pinch, Grasp, FMC, GMC, UE ROM, UE Strength, Endurance, Bilateral Coordination, Trunk Control, Trunk Rotation

**Psychosocial:** Active engagement; enjoyment of nature/outdoors; meaningful occupation to the person; stress relief and relaxation

## Strategies to Increase Task Participation

**Establish/Restore:** Shoulder elevation, shoulder abduction, shoulder adduction, elbow flexion, elbow extension, pronation, supination, wrist flexion, wrist extension, finger extension, finger flexion, finger abduction, thumb opposition

**Alter:** Complete in a therapy setting using a pool or nearby pond; If there is access to a more natural environmental setting, complete from a boat, dock, or river edge; Be aware of accessibility of chosen location

### **Adapt/Modify:**

- C6: Utilize tenodesis grasp to grip and support pole; may need assistance with set up of bait
- C7: Able to extend arms to reach bait and tackle; holding pole in place will facilitate elbow extension stretch; use of flexor hinge splint to facilitate pinch
- C8: Can complete in a more upright seated position while leaning forward, finger flexors will assist with holding fishing pole, increased hand function for set up of bait
- Other useful assistive technology: harness rod holder, wheelchair attachable rod holder or Velcro strap, electric reel with one-handed finger tip control, universal cuff, dycem, built-up handle on fishing pole, ramp to enter boat
- Role can be adapted to engage in task as a spectator or teacher

**Create/Promote:** Create an outdoor fishing club, advocate for use of universal design for public dock areas

**Prevent:** If completing task using a power wheelchair, be aware of water contacting electrical components; Due to reduced sensation, be aware of safety precautions to prevent wounds from fishing hook; Monitor fatigue

Task Planning  
 Category: Outside Pursuits Leisure  
 Task: Fishing

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Canoeing/Kayaking

## Outdoor Pursuits Leisure

### Context Elements of Task

#### Physical

- **Tools and Supplies:** Canoe or Kayak, helmet, multiple cushions, paddle(s), water resistant clothing, life jacket/flotation device
- **Work Environment:** body of water: lake, river, pool, ocean

#### Social

- **Micro:** Complete on an individual basis or in a competitive nature with peers
  - **Macro:** First time 2016 Paralympics sport; Kayaking team
- Find a local organization: Disabled Athlete Sports Association: [dasasports.org](http://dasasports.org)

#### Cultural

- **Associations:** To regain a sense of personal belonging; participate in a previous meaningful leisure occupation
- **Expressions:** Local and national tournaments; Skill building activity

#### Temporal

- **Duration and Sequence:** 30 minutes to 1 hour depending on pace of activity
- **Age and Stage:** Ages 7 and up; outdoor community setting

### Person Elements of Task

**Sensorimotor:** Grasp, FMC, GMC, UE Strength, UE ROM, Endurance

**Psychosocial:** Improved self-esteem and confidence; stress relief and relaxation; meaningful occupation for individual, increased social engagement playing with teammates; increased feelings of inclusiveness

## **Strategies to Increase Task Participation**

**Create/Promote:** Create events that promote equality by including both able-bodied and paralympic kayakers; Advocate for nearby community wellness settings and pools to provide training sessions monthly; Advocate for local sports outfitters to supply the necessary equipment in order to allow equal participation

**Alter:** Complete training in a pool or mellow body of water in order to ensure optimal safety while acquiring a basic skill set. As the individual improves switch to a more challenging environment such as a river or ocean.

**Adapt/Modify:**

- **C6:** Use Velcro handles/gloves, built-up paddle grips, grasping cuffs and apply splints as needed in order to maintain hold of paddles. Use a back and neck rest and kayak paddle keepers to support a proper position.
- **C7:** Use of built-up paddle grips, Velcro gloves/paddle grips, and tenodesis grasp to maintain hold on paddles.
- **C8:** Able to utilize regular paddles due to full hand use.
- **Other useful assistive technology:**

Spray Skirt: [http://www.sealsskirts.com/prod\\_cat\\_detect.php?i=1](http://www.sealsskirts.com/prod_cat_detect.php?i=1) ;

Outriggers on either side of the boat (prevent capsizing and improves stability of kayak/canoe)

Adapted Kayak and Canoe Suppliers: <http://adaptivecanoeing.org/education/>

**Establish/Restore:** Thumb opposition, finger flexion, finger adduction, finger abduction, gross grasp, wrist flexion, wrist extension, supination, pronation, elbow flexion, elbow extension, shoulder flexion, shoulder abduction

**Prevent:** Due to decreased sensation for individuals with SCI, ensure that each participant is dressed appropriately (waterproof clothing); Ensure that each kayak has multiple cushions in order to prevent the development of pressure sores; Monitor fatigue



**Task Planning**  
 Category: Outside Pursuits Leisure  
 Task: Canoeing/Kayaking

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Car Care

## Outdoor Pursuits Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** Vehicle, car wash supplies (hose, washrags/towels, sponge, soap), handheld or shop vacuum, car repair tools
- **Work Environment:** Outdoors, adequate space with appropriate flooring

#### Social

- **Micro:** Complete individually or with a family member or friend, share knowledge and experience, practical skill to assist others
- **Macro:** Car clubs/organizations - <http://carclubs.com/>; Classic Car Club of America - <http://www.classiccarclub.org/>

#### Cultural

- **Associations:** Car care hobby or profession
- **Expressions:** Personal responsibility, self expression through hands-on work

#### Temporal

- **Duration and Sequence:** 30 minutes – 2 hours to complete task depending on task (cleaning, repair). Steps of task for car wash: gather supplies, hose down car, wash with soap, rinse, dry. Steps for auto repair will be variable depending on task.
- **Age and Stage:** Adolescent age and up; outpatient, home, or community setting

### Person Elements of Task

**Sensorimotor:** Pinch, Grasp, FMC, GMC, UE ROM, UE Strength, Endurance, Cardio, Bilateral Coordination, Trunk Control, Trunk Rotation

**Psychosocial:** Active engagement; meaningful occupation to the person; opportunity to revisit previous passion/hobby; self efficacy and motivation.

## **Strategies to Increase Task Participation**

**Establish/Restore:** Shoulder elevation, shoulder abduction, shoulder adduction, elbow flexion, elbow extension, internal and external rotation, pronation, supination, wrist flexion, wrist extension, finger extension, finger flexion, finger abduction, thumb opposition

**Alter:** Practice within a therapy setting by requesting family member or friend to bring vehicle; Wash the therapist's car; Experience can be simulated by using necessary tools without presence of an actual vehicle; If completed within a community setting - attend a self-serve car wash or complete car care tasks at the individual's home

**Adapt/Modify:**

- C6: Utilize tenodesis grasp to hold supplies/materials; use sponge with cross strap, similar to universal cuff without needing AT (avoid over extension of fingers which may decrease tenodesis grasp)
- C7: Able to extend arms for better reach; use of flexor hinge splint to facilitate pinch
- C8: Can complete in a more upright seated position while leaning forward, finger flexors will assist with holding materials
- Other useful assistive technology: universal cuff, built-up long-handled sponge or sponge with cross strap, built up hose attachment

**Create/Promote:** Provide resources for volunteering at a car wash benefit, develop car wash center with universal design

**Prevent:** If completing task using a power wheelchair, be aware of water contacting electrical components; Monitor signs of orthostatic hypotension and autonomic dysreflexia due to physical exertion of task; Monitor fatigue; Be aware of safety precautions when utilizing tools

**Task Planning**  
 Category: Outside Pursuits Leisure  
 Task: Car Care

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Ice Fishing

## Outdoor Pursuits Leisure

### Context Elements of Task

#### Physical

- **Tools and Supplies:** Fishing pole, hook, bait, tackle box, fishing license (Can typically be purchased at a local Walmart)
- **Work Environment:** Accessible area, outdoors, from an ice-house or tent

#### Social

- **Micro:** Complete individually or with peers
- **Macro:** Fishing clubs and organizations listed by state- National Ice Fishing Association  
<http://www.nationalicefishingassociation.org/>
- **Types of Supports:** Sharing knowledge, expertise, and experiences through social engagement

#### Cultural

- **Associations:** Common American cultural tradition
- **Expressions:** Outdoor culture, bonding activities, appreciation of nature

#### Temporal

- **Duration and Sequence:** 45 minutes - 2 hours to complete task depending on personal preference. Steps of task: find a location, gather gear/supplies, rig lines, bait hook, fish!
- **Age and Stage:** Ages 7 and up; outpatient, home, or community setting

<b>Person Elements of Task</b>
<b><u>Sensorimotor:</u></b> UE ROM, UE Strength, GMC, FMC, Grasp, Pinch, Endurance, Bilateral Coordination, Trunk Control, Trunk Rotation
<b><u>Psychosocial:</u></b> Active engagement; enjoyment of nature/outdoors; meaningful occupation to the person; stress relief and relaxation

<b>Strategies to Increase Task Participation</b>
<b><u>Establish/Restore:</u></b> Shoulder elevation, shoulder abduction, shoulder adduction, elbow flexion, elbow extension, pronation, supination, wrist flexion, wrist extension, finger extension, finger flexion, finger abduction, thumb opposition
<b><u>Alter:</u></b> Complete in a therapy setting using a pool or nearby pond; completed on a frozen lake, river, or other body of water; be aware of accessibility of chosen location
<b><u>Adapt/Modify:</u></b> <ul style="list-style-type: none"> <li>• <b>C6:</b> Utilize tenodesis grasp to grip and support pole; may need assistance with set up of bait</li> <li>• <b>C7:</b> Able to extend arms to reach bait and tackle; holding pole in place will facilitate elbow extension stretch</li> <li>• <b>C8:</b> Can complete in a more upright seated position while leaning forward, finger flexors will assist with holding fishing pole, increased hand function for set up of bait</li> <li>• <b>Other useful assistive technology:</b> harness rod holder, wheelchair attachable rod holder or Velcro strap, electric reel with one-handed finger tip control, universal cuff, dycem, built-up handle on fishing pole</li> </ul>
<b><u>Create/Promote:</u></b> Create outdoor fishing club, advocate for use of universal design for public ice-fishing areas
<b><u>Prevent:</u></b> If completing task using a power wheelchair, be aware of water contacting electrical components; Due to reduced sensation, be aware of safety precautions to prevent wounds from fishing hook; Monitor fatigue

**Task Planning**  
**Category: Outside Pursuits Leisure**  
**Task: Ice Fishing**

<b>Context</b>	<b>Strengths</b>	<b>Challenges</b>
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# ACTIVE SPORTS LEISURE

- Swimming
- Basketball
- Sled Hockey
  - Golf





# Swimming

## Active Sports Leisure

### Context Elements of Task

#### Physical

- **Tools and Supplies:** Swimwear, towels, flotation aids
- **Work Environment:** Body of water (pool, lake, river) with shallow areas

#### Social

- **Micro:** Swim individually or with peers
- **Macro:** Water sports, swim team, beach activities, YMCA clubs

#### Cultural

- **Associations:** Swim team, sports culture; Disabled Sports USA  
<http://www.disabledsportsusa.org/swimming/?gclid=Cj0KEQjwgl6pBRDak6aRovWNqLsBEiQA8zZSLgh2RXyZAYE3X3-jnmsII7pDqQDRsa9Qzcwwxyc153AaAgXa8P8HAQ>
- **Expressions:** Pool parties, celebrations, boating

#### Temporal

- **Duration and Sequence:** 15 minutes to several hours depending on the nature of the swimming task
- **Age and Stage:** Ages 6 and up; at-home (pool), community setting, outdoors (lakes, rivers)

### Person Elements of Task

**Sensorimotor:** UE & LE Strength, UE & LE ROM, Endurance, GMC

**Psychosocial:** Improved self-esteem and confidence; stress relief and relaxation; meaningful occupation for individual, increased social engagement

## Strategies to Increase Task Participation

**Establish/Restore:** Finger flexion, finger extension, wrist flexion, wrist extension, elbow flexion, elbow extension, shoulder flexion, shoulder abduction

**Alter:** Complete in a variety of settings including: therapy clinic, at-home, community program, outdoors. Complete first individually in a lesson-based program to ensure safety, once mastered can be completed alongside peers and/or competitors.

**Adapt/Modify:**

- **C6:** Use of a sectional raft due to inability to use arms and legs to stay afloat.
- **C7:** Use of a life jacket and lower extremity flotation devices due to impaired ability to move arms and legs to assist with staying afloat.
- **C8:** Able to use arms to maneuver throughout water; continue using flotation devices for safety purposes.

**Other useful assistive technology:** Manual lift to get in and out of the water

**Create/Promote:** Create an outdoor swim day with friends and family. Assist client in choosing a suitable location.

Adapted Aquatics Organization: <http://www.adaptedaquatics.org/>

**Prevent:** Ensure that flotation devices are secured properly. Make sure that the flotation device is filled appropriately with air in order to prevent pressure ulcers from occurring. Ensure that there is a lifeguard present at all times when in the water. Safety checks should be completed every five minutes. Each swimmer is designated a “buddy” to ensure safety.

Task Planning  
 Category: Active Sports Leisure  
 Task: Swimming

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Basketball

## Active Sports Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** Athletic clothes, basketball, hoop, wheelchair (either traditional or specialized wheelchair basketball chair)
- **Work Environment:** Court or adequate space with appropriate flooring

#### Social

- **Micro:** Complete with family member, friend, or as part of a team
- **Macro:** National Wheelchair Basketball Association, <http://www.nwba.org/>; International Wheelchair Basketball Federation, <http://www.iwbf.org/>; Collegiate Society for Adapted Athletics, <http://www.acsaaorg.org>
- **Types of Supports:** Social or team activity, cheering and encouragement

#### Cultural

- **Associations:** International, national, and local organizations
- **Expressions:** Sport culture, active lifestyle

#### Temporal

- **Duration and Sequence:** 30 minutes – 2 hours to complete task depending on game type. Steps of task: gather equipment/clothing, warm up, play game
- **Age and Stage:** Ages 7 and up; outpatient, home, or community setting

### Person Elements of Task

**Sensorimotor:** Power Grasp, GMC, UE ROM, UE Strength, Endurance, Cardio, Reflexes/Attention, Bilateral Coordination, Trunk Control, Trunk Rotation

**Psychosocial:** Energizing, active sport; feeling of belonging – opportunity to be part of a team; meaningful occupation to the person; opportunity to revisit previous passion/hobby; self efficacy and motivation

## **Strategies to Increase Task Participation**

**Establish/Restore:** Shoulder elevation, shoulder abduction, shoulder adduction, elbow flexion, elbow extension, internal and external rotation, pronation, supination, wrist flexion, wrist extension, finger extension, finger abduction

**Alter:** Complete with an over-the-door basketball hoop within the clinic; Take an outing to a nearby community basketball court; Practice dribbling and passing if no hoop is available

**Adapt/Modify:**

- C6: utilize tenodesis grasp to hold ball; AT will be beneficial (gripper on basketball, grasping cuff); work on initial skills related to holding and passing ball; note that the task will be difficult at first due to new methods of using tenodesis grasp rather than a power grasp
- C7: Able to extend arms to pass ball; increased precision and aim
- C8: Can complete in a more upright seated position while leaning forward, increased grasp due to finger involvement
- Other useful assistive technology: basketball gripper, grasping cuff, adjustable height basketball hoop, wheelchair adaptations
- Role can be adapted to engage in task as a spectator: attend basketball games or watch game on tv

**Create/Promote:** Organize or provide resources for a community basketball team or local fitness center memberships; Promote universal design of public basketball courts and community centers

**Prevent:** If completing task from an upright wheelchair position, monitor signs of orthostatic hypotension and autonomic dysreflexia with high intensity exercise; Monitor fatigue

**Task Planning**  
 Category: Active Sports Leisure  
 Task: Basketball

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Sled Hockey

## Active Sports Leisure

### Context Elements of Task

#### Physical

- Tools and Supplies: Sled consisting of a backrest and two blades, leg straps, 2 hockey sticks (typically 3 feet in length each), helmet with attached face mask, hockey gloves, shoulder pads, elbow pads, shin pads, and a neck guard
- **Work Environment:** indoor or outdoor ice-hockey rink

#### Social

- **Micro:** Complete on an individual basis or in a competitive nature with peers
- **Macro:** Sled Hockey Teams

**Find a local team:** Disabled Athlete Sports Association: [dasasports.org](http://dasasports.org)

#### Cultural

- **Associations:** To participate in a previous meaningful leisure occupation
- **Expressions:** Team-bonding activity, Sled Hockey tournaments

#### Temporal

- **Duration and Sequence:** 30 minutes to 2 hours depending on the nature of the game
- **Age and Stage:** Ages 10 and up; community setting

### Person Elements of Task

**Sensorimotor:** Grasp, UE ROM, FMC, GMC, UE Strength, Endurance

**Psychosocial:** Improved self-esteem and confidence; stress relief and relaxation; meaningful occupation for individual, increased social engagement playing with teammates; increased feelings of inclusiveness

## Strategies to Increase Task Participation

**Create/Promote:** Promote for nearby ice arenas to offer sled hockey tournaments and training sessions on a regular basis; Advocate for sports outfitters to supply the necessary equipment in order to participate; Contact [www.caintubular.com](http://www.caintubular.com) for information.

**Alter:** Complete individually or in a non-competitive nature in order to obtain basic skills. To limit fatigue, complete in shorter sessions and increase time as endurance increases.

**Adapt/Modify:**

- **C6:** Use of extended hockey sticks, Velcro handles/gloves, built-up stick grips, and grasping cuffs in order to obtain a steady grip on hockey sticks. Apply arm splints and arm slings as needed. Utilize a motorized sled to minimize fatigue.
- **C7:** Incorporate built-up stick grips, Velcro sticks and gloves, grasping cuffs to obtain a steady grip on hockey sticks; continue use of tenodesis grasp, manual-powered sled can be used due to improved arm motor functioning.
- **C8:** Due to increased trunk control and hand use, able to lean forward to swing hockey sticks independently.
- **Other useful assistive technology:** Back rest for all cervical level injuries  
Alter hockey sleds so that they can be used on a variety of surfaces (pavement, wood floors, tile) for individuals that do not have access to hockey arenas  
Sled Hockey Suppliers: [www.caintubular.com](http://www.caintubular.com); [www.mobilitysports.com](http://www.mobilitysports.com);  
[gludwig@bluemoon.net](mailto:gludwig@bluemoon.net); [www.totalhockey.com](http://www.totalhockey.com)

**Establish/Restore:** Thumb opposition, finger flexion, finger adduction, finger abduction, gross grasp, wrist flexion, wrist extension, supination, pronation, elbow flexion, elbow extension, shoulder flexion, shoulder abduction

**Prevent:** Due to decreased sensation for individuals with SCI, check for cuts and bruises after each session; Ensure that each sled has an appropriate cushion in order to prevent the development of pressure sores; Monitor fatigue; Be aware of hypotension and autonomic dysreflexia with high intensity exercise



Task Planning  
 Category: Active Sports Leisure  
 Task: Sled Hockey

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

### Context Elements of Task

#### Physical

- **Tools and Supplies:** wheelchair (manual or power), golf clubs, golf balls, adequate space
- **Work Environment:** adequate space, flat floor surface

#### Social

- **Micro:** Complete individually, with peers, or in a golf league
- **Macro:** Golf leagues/golf club membership
- **Types of Supports:** Sharing knowledge and expertise through social engagement

#### Cultural

- **Associations:** To regain a previous active role and sense of identity, golf club membership
- **Expressions:** Golf fundraiser

#### Temporal

- **Duration and Sequence:** 30 minutes to 3 hours depending on the type of golf performed; driving range, 9 hole game, 18 holes.
- **Age and Stage:** Ages 10 and up; outpatient, home-setting, community setting

### Person Elements of Task

**Sensorimotor:** Grasp, UE ROM, FMC, GMC, UE Strength, Endurance

**Psychosocial:** Improved self-esteem and confidence; stress relief and relaxation; meaningful occupation for individual, increased social engagement

## Strategies to Increase Task Participation

**Establish/Restore:** Thumb opposition, finger flexion, finger adduction, finger abduction, wrist flexion, wrist extension, supination, pronation, elbow flexion, elbow extension, shoulder flexion

**Alter:** Complete in a variety of settings including; therapy clinic, at-home, driving range and golf-course due to the multiple components of the task.

**Adapt/Modify:**

- **C6:** Utilize extended golf clubs, Velcro club handles/gloves, built-up club grips, grasping cuff to maximize grip on golf clubs. A tenodesis grasp can be utilized due to decreased arm movement.
- **C7:** Able to manually select all materials independently; built-up club grips, Velcro clubs and gloves to ensure safety while performing full ROM golf swings.
- **C8:** Increased trunk control and hand use; able to lean forward to swing clubs.

· **Other useful assistive technology:** TruTee

<https://www.youtube.com/watch?v=ho2gchMxitw> ; Paramobile

<http://www.standupandplayfoundation.org/paramobile/>

**Create/Promote:** Create a golf outing with friends and family to promote social engagement and reintegration to roles. Assist client in joining a golf club and golf foursome.

**Prevent:** Due to spastic movements which are common for this diagnosis, it is important to be aware of the swinging golf club at all times; If completing task from an upright wheelchair position, monitor signs of orthostatic hypotension and autonomic dysreflexia; Monitor fatigue

Task Planning  
 Category: Active Sports Leisure  
 Task: Golf

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# CREATIVE LEISURE

- Photography
- Painting & Drawing
  - Writing
- Woodworking



# Photography

## Creative Leisure

### Context Elements of Task

#### Physical

- **Tools and Supplies:** Camera, tripod stand, camera case, security strap, variety of lenses, charger
- **Work Environment:** Flat surface when using tripod, variety of settings

#### Social

- **Micro:** Complete individually or with peers
- **Macro:** Local and national photography clubs - <http://www.photo-ne.com/biglist/page13.htm> Photographic Society of America - <http://www.psa-photo.org/index.php?n-america-members>
- **Types of Supports:** Sharing knowledge, expertise, and photos through social engagement. The Disabled Photographer's Group- [www.disabledphotographers.co.uk](http://www.disabledphotographers.co.uk)

#### Cultural

- **Associations:** Photography clubs/organizations
- **Expressions:** Photography sessions, photography conventions; expression of lifestyle, values, and culture through pictures

#### Temporal

- **Duration and Sequence:** 15 minutes to several hours depending on the number of nature settings
- **Age and Stage:** Ages 10 and up; outpatient, home-setting, community setting

## Person Elements of Task

**Sensorimotor:** Grasp, UE ROM, FMC, GMC, UE Strength, Endurance

**Psychosocial:** Creativity, stress relief and relaxation; meaningful occupation for individual, promotes self expression of values and lifestyle through pictures

## Strategies to Increase Task Participation

**Establish/Restore:** Thumb opposition, finger flexion, finger adduction, finger abduction, gross grasp, wrist flexion, wrist extension, elbow flexion, elbow extension

**Alter:** Complete in a variety of indoor and outdoor settings including: therapy clinic, at-home, community setting due to the convenience and portability of the task.

### **Adapt/Modify:**

- **C6:** Use of a remote control clicker, timer, mouth or tongue switch to simplify photo capturing. Use of a wheelchair clamp for increased camera stability.
- **C7:** Use of a tripod stand or Velcro strips to secure grip due to weight of the camera. Able to attach lenses and equipment independently due to fine motor control.
- **C8:** Able to lean into different positions to take pictures. Use of a wheelchair security belt to prevent falls.
- **Other useful assistive technology:** [www.disabledphotographers.co.uk](http://www.disabledphotographers.co.uk)

**Create/Promote:** Create a photography session and setting. Assist client in locating local photography clubs, such as: Local and national photography clubs - <http://www.photo-ne.com/biglist/page13.htm> and the Photographic Society of America - <http://www.psa-photo.org/index.php?n-america-members>

**Prevent:** Due to spastic movements which are common for this particular diagnosis, it is important to be aware of the possible dropping of equipment; If positioned in an upright position for a prolonged period of time, be cautious of autonomic dysreflexia and orthostatic hypotension symptoms; Monitor fatigue

Task Planning  
 Category: Creative Leisure  
 Task: Photography

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:



# Painting & Drawing

## Creative Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** Paint, paper/canvas, paint brush, cup, paint shirt
- **Work Environment:** Flat floor surface, comfortable table or easel height

#### Social

- **Micro:** Can be completed with a family member or friend, Attend a local Wine & Paint class - <http://www.wineandcanvas.com/>
- **Macro:** National Institute of Art & Disabilities - <http://niadart.org/>; National Arts and Disability Center - <http://www.semel.ucla.edu/nadc>

#### Cultural

- **Associations:** Self expression through art, regain sense of identity
- **Expressions:** Non-verbal and symbolic expression

#### Temporal

- **Duration and Sequence:** 30 minutes - 1 hour to complete task. Steps of Task: gather supplies and begin!
- **Age and Stage:** Ages 5 and up; can be completed during any stage of rehabilitation

### Person Elements of Task

**Sensorimotor:** Pinch, Grasp, FMC, Hand and Finger Strength, UE ROM, Endurance, Trunk Control, Sensation

**Psychosocial:** Creativity; stress relief and relaxation; improved self-esteem and confidence, meaningful occupation for the individual

## **Strategies to Increase Task Participation**

**Establish/Restore:** Shoulder elevation, elbow flexion, elbow extension, pronation, supination, wrist flexion, wrist extension, finger flexion, finger adduction, thumb opposition

**Alter:** Complete within a therapy session or at home; arrange to attend a local painting class

**Adapt/Modify:**

- C6: Wear non-slip glove and insert paint brush in between fingers; short opponens splint with pencil slot to secure paintbrush; slanted and raised table or easel to compensate for elbow flexion
- C7: Able to complete task on non-adapted table due to use of elbow extensors; able to reach for materials; use of flexor hinge splint to facilitate pinch
- C8: Use of fingers to manipulate paint brush; built-up handles to assist with pinch; can complete in a more upright seated position while leaning forward
- Other useful assistive technology: glove, universal cuff, built-up paint brush handle, dycem to prevent canvas from shifting, short opponens splint
- Therapeutic Art Lessons for Children and Adults with Disabilities - <http://artshoptherapy.com/blog/topics/teaching-art/>

**Create/Promote:** Create an Art Therapy Studio; provide individual with resources for community art courses to promote social engagement

**Prevent:** Place newspapers/towels to reduce chance of mess (possible spasms); Monitor fatigue

Task Planning  
 Category: Creative Leisure  
 Task: Painting & Drawing

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Writing

## Creative Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** Paper or notebook, envelopes, writing utensil, stamps, computer
- **Work Environment:** Flat floor surface, comfortable table height

#### Social

- **Micro:** Send letters to family and friends, stay connected
- **Macro:** [www.caringbridge.org](http://www.caringbridge.org) - connecting family and friends during a health journey

#### Cultural

- **Associations:** Variable dependent on individual's cultural identifications
- **Expressions:** Nonverbal communication, expression of beliefs and ideas

#### Temporal

- **Duration and Sequence:** 15-30 minutes to complete task. Flexible sequencing; variable dependent on type of writing.
- **Age and Stage:** Ages 6 and up; can be completed during any stage of rehabilitation

### Person Elements of Task

**Sensorimotor:** Pinch, Grasp, FMC, Hand and Finger Strength, UE ROM, Endurance, Trunk Control

**Psychosocial:** Creativity; self efficacy through social connection; stress relief and relaxation; improved self-esteem and confidence

## Strategies to Increase Task Participation

**Establish/Restore:** Shoulder elevation, elbow flexion, elbow extension, pronation, supination, wrist flexion, wrist extension, finger flexion, finger adduction, thumb opposition

**Alter:** Can be used in a variety of settings (home, therapy) due to portability and convenience of task.

**Adapt/Modify:**

- C6: Universal cuff to manipulate writing utensil; short opponens splint with pencil slot; slanted and raised table to compensate for elbow flexion; may benefit from computer adaptations
- C7: Able to complete task on non-adapted table due to use of elbow extensors; use of flexor hinge splint to facilitate pinch grip
- C8: Use of fingers to manipulate writing utensil; built-up handles to assist with pinch; can complete in a more upright seated position while leaning forward
- Other useful assistive technology: adapted pen, universal cuff, short opponens splint, built-up handles, non-slip materials, table adaptations or wedge, vertical keyboard mouse

**Create/Promote:** Create CaringBridge web page to promote social connections with friends and family

**Prevent:** Due to reduced sensation, be aware of safety precautions to prevent cuts from paper or writing utensils; Monitor fatigue

Task Planning  
 Category: Creative Leisure  
 Task: Writing

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Woodworking

## Creative Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** wood, tool kit and supplies, power tools, safety equipment
- **Work Environment:** maneuverable wheelchair space, tools within reach

#### Social

- **Micro:** Complete projects for family, neighbors, or friends; teach skills to a child, spouse, or friend; attend local woodworking classes such as Table Saw Safety or Upcycling a Birdhouse- <http://www.woodcraft.com/Resources/Education.aspx>
- **Macro:** Habitat for Humanity volunteer work; wood working classes, courses, and schools - <http://www.woodworking-news.com/woodworking-classes.shtml>

#### Cultural

- **Associations:** Reengagement in identity as a builder or “handyman”; family traditions or expectations
- **Expressions:** Self expression through hands on work

#### Temporal

- **Duration and Sequence:** 30 minutes - 2 hours to complete task. Steps of Task: Variable dependent on woodworking task
  - How-to videos available online - <http://www.woodworking-news.com/>
- **Age and Stage:** Ages 10 and up; typically completed in outpatient or community setting

### Person Elements of Task

**Sensorimotor:** Pinch, Grasp, FMC, GMC, UE ROM, UE Strength, Endurance, Bilateral Coordination, Trunk Control

**Psychosocial:** Creativity; hands on expression; meaningful hobby for the individual

## Strategies to Increase Task Participation

**Establish/Restore:** Thumb opposition, finger flexion, finger adduction, finger abduction, wrist flexion, wrist extension, supination, pronation, elbow flexion, elbow extension, shoulder flexion, shoulder abduction

**Alter:** Complete outdoors, in the garage at home, during a therapy session, or at a community woodworking course. Therapist role is to alter the environment to promote safety, adequate space to maneuver wheelchair, and accessibility of table and work area.

### **Adapt/Modify:**

- C6: Wear non-slip gloves or safety tape for protection and stabilization of tools with tenodesis grasp; practice use of tenodesis grasp when manipulating objects; use of sanding belt cuff and universal cuff on hand tools; use of clamps to secure wood to table
- C7: Able to extend elbow to reach for materials, use hammer, and stabilize wood with non-dominant hand; use flexor hinge splint to facilitate pinch
- C8: Use of fingers to manipulate hand tools; built-up handles to assist with grasp; work on strengthening trunk control while completing task
- Other useful assistive technology: sanding belt cuff, clamps, gloves or safety tape, universal cuff, built-up handles on tools, dycem, wood turner - [www.woodworker.com](http://www.woodworker.com)

**Create/Promote:** Volunteer for Habitat for Humanity to work alongside members in the community and give back to others

**Prevent:** Provide extensive education and practice with power tool safety; Be aware of possible splinters or injury due to decreased sensation; Monitor fatigue



Task Planning  
 Category: Creative Leisure  
 Task: Woodworking

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# AT HOME LEISURE

- Manicure
- Baking
- Playing Cards
- Reading



# Manicure

## At Home Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** Bowl, nail polish remover, nail files, nail brush, polish, and lotion
- **Work Environment:** Flat floor surface, comfortable table height

#### Social

- **Micro:** Complete with a family member or friend
- **Macro:** Mary Kay beauty party

#### Cultural

- **Associations:** To regain sense of identity
- **Expressions:** Girls night or celebration, self expression

#### Temporal

- **Duration and Sequence:** 15-20 minutes to complete task. Steps of task: set up workspace, cut and file nails, soak nails, apply lotion, apply polish, allow to dry, apply additional coats as desired - [www.wikihow.com/Give-Yourself-a-Manicure](http://www.wikihow.com/Give-Yourself-a-Manicure)
- **Age and Stage:** Ages 5 and up; can be completed during any stage of rehabilitation

### Person Elements of Task

**Sensorimotor:** Pinch, Grasp, FMC, GMC, UE ROM, UE Strength, Endurance, Bilateral Coordination, Trunk Control

**Psychosocial:** Improved self-esteem and confidence; stress relief and relaxation; meaningful occupation for individual

## **Strategies to Increase Task Participation**

**Establish/Restore:** Shoulder elevation, elbow flexion, elbow extension, pronation, supination, wrist flexion, wrist extension, finger flexion, finger adduction, finger abduction, thumb opposition

**Alter:** Can be used in a variety of settings (home, therapy) due to portability and convenience of task.

**Adapt/Modify:**

- C6: Use tenodesis grasp to unscrew polish caps; universal cuff to manipulate polish brush
- C7: Able to set up own materials due to use of elbow extensors; use of flexor hinge splint to facilitate pinch
- C8: Use of fingers to manipulate polish brush; built-up handles to assist with pinch/grasp
- Other useful assistive technology: table nail clipper, Velcro, universal cuff, built-up handles, non-slip materials, screw cap opener

**Create/Promote:** Create a spa session to promote social engagement and normalcy; Assist client in arranging a Mary Kay beauty party; advocate for nearby nail salons to practice a universal design

**Prevent:** Due to reduced sensation, be aware of safety precautions to prevent cuts when using nail clippers and other sharp objects; Place newspapers/towels to reduce chance of mess (possible spasms); Monitor fatigue

Task Planning  
 Category: At Home Leisure  
 Task: Manicure

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Baking

## At Home Leisure

### Context Elements of Task

#### Physical

- **Tools and Supplies:** Mixing bowls, necessary baking ingredients (flour, sugar, baking soda, etc), baking utensils, and an oven
- **Work Environment:** adequate counter space, flat floor surface

#### Social

- **Micro:** Complete individually or with peers
- **Macro:** Pampered Chef party; Tastefully Simple party
- **Types of Supports:** Sharing knowledge, expertise, and recipes through social engagement

#### Cultural

- **Associations:** Family customs and traditional foods, regain a previous lifestyle or role
- **Expressions:** Potlucks, bake sales, parties

#### Temporal

- **Duration and Sequence:** 15 minutes to 1 hour depending on the baking task
- **Age and Stage:** Ages 10 and up; outpatient, home-setting, community setting

### Person Elements of Task

**Sensorimotor:** Grasp, UE ROM, FMC, GMC, UE Strength, Endurance

**Psychosocial:** Fulfillment of family roles, satisfaction through giving to others, stress relief and relaxation; meaningful occupation for individual, increased social engagement

## Strategies to Increase Task Participation

**Establish/Restore:** Thumb opposition, finger flexion, finger adduction, finger abduction, wrist flexion, wrist extension, supination, pronation, elbow flexion, elbow extension, shoulder flexion

**Alter:** Complete in a variety of settings including; therapy clinic, at-home, community setting due to the convenience of the task.

**Adapt/Modify:**

- **C6:** Use of an electric mixer to limit fatigue. Use of universal cuff, built-up handles, and extended handles to maximize grip on baking utensils.
- **C7:** Use of built-up handles and extended handles to ensure a strong grip on baking utensils; use of flexor hinge splint to facilitate pinch
- **C8:** Due to increased wrist and hand functioning a hand-held mixer or whisk could be used.
- **Other useful assistive technology:** Cool Touch Oven Rack Guard <http://bakingbites.com/2008/06/cool-touch-oven-rack-guard/> ; Portable Lap Counter <http://bakingbites.com/2007/06/portable-lap-counter/> ; Reacher

**Create/Promote:** Create a baking event or potluck to promote social engagement. Assist client in locating baking conventions/parties. Advocate for public/community kitchens to have wheelchair accessible kitchen equipment.

**Prevent:** Due to diminished sensation in some patients, be cautious when placing pans into oven; Due to spastic movements which are common for this diagnosis, it is important that to be aware of the possible dropping of utensils or spilling ingredients; Cover patient in protective gear such as an apron, towels, oven mitts; Monitor fatigue

Task Planning  
 Category: At Home Leisure  
 Task: Baking

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:



# Playing Cards

## At Home Leisure

### Context Elements of Task

#### Physical

- **Tools and Supplies:** Deck of cards
- **Work Environment:** Flat table surface

#### Social

- **Micro:** Complete individually or with friends and family
- **Macro:** Poker or other card-playing tournaments
- **Types of Supports:** Sharing knowledge and experiences through social engagement.

#### Cultural

- **Associations:** Membership in card clubs, belonging to a group
- **Expressions:** Family card tournament, "Casino Day"

#### Temporal

- **Duration and Sequence:** 15 minutes to several hours depending on the number of games played
- **Age and Stage:** Ages 6 and up; inpatient, outpatient, home-setting, community setting

### Person Elements of Task

**Sensorimotor:** Grasp, UE ROM, FMC, UE Strength, Endurance

**Psychosocial:** Increased social engagement with peers, improved self-esteem and confidence; meaningful occupation for individual

## Strategies to Increase Task Participation

**Establish/Restore:** Thumb opposition, finger flexion, finger adduction, finger abduction, lateral key pinch grasp, wrist flexion, wrist extension, elbow flexion, elbow extension

**Alter:** Complete in a variety of indoor and outdoor settings including therapy clinic, at-home, or community setting due to the limited materials required.

**Adapt/Modify:**

- **C6:** Use of gripped cards, card holder mounted to wheelchair or a lap table to assist with poor grasp.
- **C7:** Able to draw and release cards with greater ease, can play on a table shared with peers, use flexor hinge splint to facilitate pinch grip
- **C8:** Can manipulate cards and poker chips with ease.
- **Other useful assistive technology:** magnetic cards and board, card holder, enlarged cards, weighted cards

**Create/Promote:** Create a card playing day for client and his or her family. Assist client in locating local and national card playing organizations- [http://www.worldpokertour.com/Shared/Tournaments/Seasons/Regional\\_and\\_National.aspx](http://www.worldpokertour.com/Shared/Tournaments/Seasons/Regional_and_National.aspx)

**Prevent:** Spasticity may result in the dropping of cards and materials; If positioned in an upright position for a prolonged period of time, be cautious of the creation of pressure sores; Monitor fatigue

**Task Planning**  
**Category: At Home Leisure**  
**Task: Playing Cards**

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Reading

## At Home Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** Favorite book
- **Work Environment:** Comfortable chair or wheelchair at home, public library, or coffee shop - versatile environment due to portability of activity

#### Social

- **Micro:** Book clubs, public library membership, resource for “Good Things to Read” following a SCI - <http://www.facingdisability.com/spinal-cord-injury-resources/categories/good-things-to-readarticles>
- **Macro:** Join a local book club! Listings for local groups, book clubs, author events, and phone chats - <http://www.readerscircle.org/>

#### Cultural

- **Associations:** Books are available in every cultural genre, encompassing ethnicity, gender, age, sexual orientation, and religion. Useful resources: <http://www.goodreads.com/genres/cultural>; <http://www.openculture.com/2013/11/the-100-best-novels-1898.html>
- **Expressions:** Expression of language, beliefs, and ideas; exploration of culture and values

#### Temporal

- **Duration and Sequence:** Time dependent on personal choice - can be completed at any time of the day for any duration of time.
- **Age and Stage:** Ages 5 and up dependent on reading ability; can be completed during any stage of rehabilitation

### Person Elements of Task

**Sensorimotor:** Pinch, Grasp, FMC, Hand and Finger Strength, UE Endurance, Trunk Control

**Psychosocial:** Stress relief and relaxation; imagination and visualization; escape from reality; emotional and intellectual benefits

### Strategies to Increase Task Participation

**Establish/Restore:** Shoulder elevation, elbow flexion, elbow extension, pronation, supination, finger flexion, finger adduction, thumb opposition

**Alter:** Complete in a variety of settings (home, therapy) due to portability and convenience of the task. To promote social engagement, encourage client to attend book clubs, visit the local library, or read at a public coffee shop. Find a local library location at: <https://www.worldcat.org/libraries>.

**Adapt/Modify:**

- C6: Free audio books available at: <http://www.loyalbooks.com/>, may require use of book holder and page turning AT
- C7: Use of elbow extensors to stabilize open book on table; use of flexor hinge splint to facilitate pinch
- C8: Use of fingers to manipulate and turn pages, however may require page turner dependent on pinch ability
- Other useful assistive technology: book-holder, manual and electric page turner, audio books, cushion for prevention of pressure ulcers

**Create/Promote:** Promote universal design of community libraries and book stores; create local book clubs accessible to all individuals to promote social engagement and reintegration into the community

**Prevent:** Teach client to self monitor for prevention of pressure ulcers when sitting for long periods of time; Due to reduced sensation, be aware of papercuts

Task Planning  
 Category: At Home Leisure  
 Task: Reading

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# SOCIAL LEISURE

- Volunteering at a Humane Society
  - Going to a Bar
  - Bingo
- Going Out to Eat



# Volunteering at a Humane Society

## Social Leisure

### Context Elements of Task

#### Physical

- **Tools and Supplies:** Wheelchair, pet grooming supplies, leash, pet toys
- **Work Environment:** Outdoors, local humane society

#### Social

- **Micro:** Complete individually or with other volunteers
- **Macro:** National Humane Society - <http://www.humanesocietynational.org/>
- **Types of Supports:** Bonding and social engagement with peers and animals

#### Cultural

- **Associations:** To give back to the community and help animals in need
- **Expressions:** Contributes to an individual's value system of helping and serving

#### Temporal

- **Duration and Sequence:** 30 minutes to 1 hour depending on tasks assigned to client
- **Age and Stage:** Ages 10 and up; community setting

### Person Elements of Task

**Sensorimotor:** Grasp, UE ROM, FMC, GMC, UE Strength, Endurance

**Psychosocial:** Improved self-esteem and confidence; stress relief and relaxation; meaningful occupation for individual, increased social engagement with peers; feelings of worthiness by giving back to the community and helping animals



## Strategies to Increase Task Participation

**Establish/Restore:** Thumb opposition, finger flexion, finger adduction, finger abduction, gross grasp, wrist flexion, wrist extension, elbow flexion, elbow extension

**Alter:** Complete in a variety of indoor and outdoor settings at the humane society and within the community. Within the clinic, practice manipulating pet supplies in preparation for animal care. Complete with peers for a social activity or complete independently as a relaxation method.

**Adapt/Modify:**

- **C6:** Add a leash attachment on wheelchair or use of tenodesis grasp to hold grooming materials.
- **C7:** Addition of built-up and extended handles attached to grooming supplies to assist with grooming tasks.
- **C8:** Able to grab supplies within reach. Would benefit from an elevated table to groom animals due to full arm use.
- **Other useful assistive technology:** Built-up handles, long-handled grooming supplies, reacher, adapted leash, universal cuff

**Create/Promote:** Assist client in finding local humane societies with universal access that they are able to volunteer at. Promote animal rights with a local animal rights group. Participate in training animals and possibly showing in future- The American Kennel Club: <http://www.akc.org/>

**Prevent:** Spasticity may result in the dropping of materials; Be cautious of water temperature when grooming animals due to impaired sensation; Monitor fatigue

**Task Planning**  
**Category: Social Leisure**  
**Task: Volunteering at the Humane Society**

<b>Context</b>	<b>Strengths</b>	<b>Challenges</b>
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Going to the Bar

## Social Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** Wheelchair (manual or power), proper transportation accommodations (adapted vehicle or community transportation)
- **Environment:** May encounter uneven terrain, be aware of accessibility options of the area (ramps, sidewalks, bathrooms, entrances)

#### Social

- **Micro:** Can attend bar individually to meet new people or as a social engagement opportunity with a family member or friend
- **Macro:** Las Vegas vacation, social function with coworkers

#### Cultural

- **Associations:** Culturally meaningful activity for social engagement, community reintegration
- **Expressions:** Social lifestyle, meeting and engaging with people

#### Temporal

- **Duration and Sequence:** Variable time frame dependent on personal preference. Steps of Task: set up transportation, invite friends, make plan for a ride home following the activity
- **Age and Stage:** Ages 21 and up; outpatient or community setting

### Person Elements of Task

**Sensorimotor:** Pinch, Grasp, FMC, Hand and Finger Strength, UE ROM

**Psychosocial:** Social engagement, improved self-esteem and confidence, meaningful occupation for the individual

## Strategies to Increase Task Participation

**Establish/Restore:** Shoulder elevation, elbow flexion, elbow extension, pronation, supination, finger flexion, finger adduction, thumb opposition

**Alter:** Practice task within the clinic utilizing AT and practicing mobility; Choose bar location with consideration of accessibility options

**Adapt/Modify:**

- C6: Use tenodesis grasp to hold cup; use mug with wide handle to mimic universal cuff; wheelchair cup holder, may require assistance to pay with credit card; attach loop onto credit card for easier manipulation
- C7: Able to extend arms to reach for drinks due to use of elbow extensors; use of flexor hinge splint to facilitate pinch when manipulating money/credit card
- C8: Use of fingers to pay with credit card and manipulate cups/glasses
- Other useful assistive technology: dycem or mug with increased texture, universal cuff, mug with wide handle, wheelchair drink holder, loop on credit card, adaptations for wallet access, ramp, Udrink - <http://www.wheelchairgear.com/>

**Create/Promote:** Promote universal design at public bars and clubs

**Prevent:** Be aware of uneven ground during wheelchair transportation; Drink in moderation; Always line up safe transportation; Monitor spillage due to spasms

Task Planning  
 Category: Social Leisure  
 Task: Going to the Bar

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

# Bingo

## Social Leisure

### Context Elements of Task

#### Physical

- **Tools and Supplies:** Bingo cards, markers/stamps, bingo generator
- **Work Environment:** Flat floor and table surface

#### Social

- **Micro:** Complete with friends, family, or peers
- **Macro:** Bingo Hall tournaments; “National Bingo Night”

#### Cultural

- **Associations:** To participate in community events
- **Expressions:** Bingo tournaments

#### Temporal

- **Duration and Sequence:** 30 minutes to several hours depending on the individual’s preference
- **Age and Stage:** Ages 6 and up; inpatient, out-patient, community setting

### Person Elements of Task

**Sensorimotor:** Grasp, UE ROM, FMC, GMC

**Psychosocial:** Improved self-esteem and social engagement; stress relief and relaxation; meaningful occupation for individual

## Strategies to Increase Task Participation

**Create/Promote:** Promote for nearby bingo halls to utilize universal design (wheelchair ramps, handicap accessible bathrooms, etc). Promote for individuals with disabilities to be the bingo caller. Promote for bingo events where individuals with disabilities can teach bingo to children in a variety of settings. National Bingo Association: <https://www.bingo-association.co.uk/home>

**Alter:** Complete in a variety of physical settings due to the convenient nature of the task. Can also be completed online through virtual bingo websites.

**Adapt/Modify:**

- **C6:** Use of arm slings or a Portable lap counter to assist in arm movements; <http://bakingbites.com/2008/06/cool-touch-oven-rack-guard/> ; utilization of tenodesis grasp to hold markers.
- **C7:** Addition of built-up handles on markers/stamps; use of flexor hinge splint to facilitate pinch
- **C8:** Able to grasp markers and bingo sheets due to full hand use.

**Establish/Restore:** Thumb opposition, finger flexion, finger adduction, finger abduction, gross grasp, wrist flexion, wrist extension, elbow flexion, elbow extension, shoulder flexion

**Prevent:** Due to frequent spasticity for individuals with SCI be cautious of dropping materials; Ensure that the individual is sitting on an appropriate cushion to decrease the likelihood of pressure sores; Monitor fatigue

Task Planning  
 Category: Social Leisure  
 Task: Bingo

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:



# Going Out to Eat

## Social Leisure

### Contextual Elements of Task

#### Physical

- **Tools and Supplies:** Wheelchair (manual or power), proper transportation accommodations (adapted vehicle or community transportation)
- **Environment:** Contact restaurant ahead of time to identify accessibility options of the location (ramps, sidewalks, bathrooms, entrances)

#### Social

- **Micro:** Catch up with old friends, dinner with family, go on a date
- **Macro:** Go to a restaurant with co-workers, for a club/organization, or other social functions

#### Cultural

- **Associations:** Eating out is a common ritual/tradition within the American culture; opportunity for social engagement and community reintegration
- **Expressions:** Eat food from various cultures

#### Temporal

- **Duration and Sequence:** 1-2 hours to complete task. Steps of task: Choose restaurant, arrange transportation, order food, and enjoy!
- **Age and Stage:** All ages; outpatient or community setting

### Person Elements of Task

**Sensorimotor:** Pinch, Grasp, FMC, GMC, Hand and Finger Strength, UE ROM, Trunk Control

**Psychosocial:** Meaningful social engagement, community reintegration, feeling of belonging, improved self-esteem and confidence

## Strategies to Increase Task Participation

**Establish/Restore:** Shoulder elevation, elbow flexion, elbow extension, pronation, finger flexion, finger adduction, thumb opposition

**Alter:** Practice eating a meal with adaptive techniques within the clinic to increase confidence/skills prior to going out in the community. Choose a restaurant with consideration of accessibility options.

**Adapt/Modify:**

- **C6:** Universal cuff to hold utensils; use tenodesis grasp to hold cup; use mug with wide handle to mimic universal cuff; may require assistance to cut food; attach loop onto credit card for easier manipulation
- **C7:** Use of elbow extensors to better control plate-to-mouth motion; Insert non-slip grip silverware in between fingers; able to reach items on table
- **C8:** Use of fingers to manipulate utensils, cups, and napkin; built up handles on silverware to assist with grasp as needed
- **Other useful assistive technology:** bowl/plate with lip or plastic guard; dycem to stabilize plate on table, universal cuff, mug with wide handle, loop on credit card, adaptations for wallet access, ramp, short opponens splint with utensil slot, adapted utensils -  
[http://www.rehabmart.com/category/Eating\\_Utensils\\_and\\_Accessories.htm](http://www.rehabmart.com/category/Eating_Utensils_and_Accessories.htm)

**Create/Promote:** Practice use of unobtrusive AT or adaptive techniques that promote normalcy - <http://www.diningwithdignity.com/>; Promote universal design for public restaurants

**Prevent:** Prepare for possible mess due to spasticity; proper cushion and training in shifting weight to prevent pressure sores

Task Planning  
 Category: Social Leisure  
 Task: Going Out to Eat

Context	Strengths	Challenges
Physical		
Social		
Cultural		
Temporal		
<b>Person Elements</b>		
Sensorimotor		
Psychosocial		

**Recommendations:**

Establish/Restore:

Adapt/Modify:

Alter:

Prevent:

Create:

## **CHAPTER V**

### **SUMMARY**

The Occupation-Based Leisure Intervention Manual was created to assist occupational therapists with creative and meaningful leisure intervention planning for individuals with a spinal cord injury. The purpose of this manual is to extend the range of tasks available to individuals with a spinal cord injury, enabling application of client-centered, interest-guided leisure interventions through adaptation of task and environmental factors. The manual is structured to serve as a practical guide for therapists, including occupation-based assessment tools, leisure interventions sorted by category, extensive task analysis and intervention options for each leisure activity, and additional resources to support occupational success.

This product was primarily created to be implemented within an inpatient, outpatient, or community setting. Additionally, this manual can be shared with individuals with SCI and their families for use at home. Users of this manual are equipped with occupation-based assessment tool options, leisure intervention options and resources to assist with task analysis and intervention implementation.

This product includes limitations with consequent recommendations for future development. A limited amount of research was found regarding the implementation of specific leisure interventions with individuals with spinal cord injury. It is recommended that research be carried out to indicate the efficacy the leisure interventions included in the manual as well as additional client-specific leisure intervention plans. This product is limited to leisure-based interventions, and could benefit from expansion into additional occupation-based categories (i.e.

IADLs, Work, Play). Therapists using this manual are encouraged to continue adding additional interventions following further research of evidence based practice. Task adaptations within the manual are limited to spinal cord injury levels C6-C8, and could be extended for comprehensive inclusion of the SCI levels. Additionally, the focus of this manual was to provide leisure interventions for people with spinal cord injury, however the ideas and intervention processes could be expanded to additional populations, as leisure interventions are important across diagnoses.

This manual was created to drive client-centered intervention plans focused on meaningful leisure engagement, ultimately resulting in higher quality of life for individuals with SCI. To provide highest level of care for today's clients, occupational therapists need to be equipped with the correct resources for creating individualized, meaningful intervention plans with client-driven goals. This manual will assist OTs in extending the range of leisure activities available to individuals with SCI, resulting in successful leisure engagement and increased quality of life.

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