Special Interest Section Quarterly
Physical Disabilities
Sponsored in part by TRS, Inc.
Volume 34, Number 2 • June 2011
Published by The American Occupational Therapy Association, Inc.

Trip Tip: Dementia and Driving

■ Holly Alexander, OTR/L, CDRS

For many, driving is synonymous with independence. Driving affords the ability to access our communities, enabling participation in social and leisure opportunities and fulfillment of roles. Concerns reflecting deficits with driving may surface in even the early stages of dementia when many individuals are still actively driving, thus warranting the need for intervention of caregivers and occupational therapy practitioners.

There are many performance skills and client factors that may affect driving ability and safety. Driving is a complex task, incorporating physical, visual, sensory, and cognitive skills. Cognition is composed of a number of factors, including attention, memory, organization, and judgment (Colsher & Wallace, 1993; Hunt, Morris, Edwards, & Wilson, 1993; Hutcherson, 1988; Irwin, 1988; Keplinger, 1998; Marottoli, 1993; Parasuraman & Nestor, 1993; Ray, Shorr, & Thapa, 1993; Reuben, 1993).

Attention is divided into three categories. *Selective attention* is the ability to prioritize which stimuli to focus on and requires the ability to prioritize and shift focus when necessary. Selective attention enables the driver to choose and maintain attention on the stimuli important to driving while blocking out other stimuli, such as conversations, traffic, or a roadside crash. *Divided attention* occurs when two or more stimuli must be attended to simultaneously (e.g., when changing lanes, drivers must focus their attention on traveling forward, checking for clear traffic to the side and rear, and operating the vehicle controls). *Sustained attention* is an alert state maintained for a long period of time, which is used constantly when driving (Colsher & Wallace, 1993; Irwin, 1988; Panek, Alexander, Barrett, & Sterns, 1978; Parasuraman & Nestor, 1993).

Memory is involved in many aspects of driving, from recalling how to operate the automobile, what the destination is, and how to get to the destination, to visual memory in recalling recently passed road signs (Colsher & Wallace, 1993; Irwin, 1988; Marottoli, 1993).

Organization is imperative in driving. The driver must be able to sequence steps of a trip, including topographical orientation and route planning.

Judgment is another key factor in driving safety. Drivers must demonstrate good judgment and insight into identifying and predicting potential hazards and making appropriate decisions to execute safe motor responses to situations like pulling into traffic, reacting to other drivers and merging.

Alzheimer's disease and other forms of dementia can frequently affect these aspects of cognition (Carr, 1993; Carr, Jackson, Madden, & Cohen, 1992; Graca, 1986; Hutcherson, 1988; Keplinger, 1998; Marottoli, 1993; Murray, 1997; Parasauraman & Nestor, 1993). Momentary lapses in attention or the inability to attend to multiple stimuli can easily result in crashes based on changes in the driving environment or inappropriately manipulating the automobile controls. Memory impairments can create increased distractions for drivers with dementia. Forgetting which direction to go, where one is going, or the landmarks along the route divert other cognitive functions from the task of driving, decreasing the driver's full performance potential. Any of the previously mentioned circumstances can happen to an aging driver, but they are most likely to occur in a person with an illness specifically affecting cognition, such as Alzheimer's disease or other dementias (Hunt et al., 1993).

Additional factors to consider when addressing driving are arousal, orientation, processing speed, and problem solving. Drivers must be able to identify a potential hazard, predict the potential outcome, decide what to do, and execute a proper motor response to the situation, all while demonstrating proper attention.

One tool in particular to help assess cognition is the Trailmaking Test, Parts A and B (Reitan & Wolfson, 1993). Trailmaking tests are timed paper-and-pencil-based tests that measure attention, visual scanning, planning, processing speed, divided attention, and attention shifting. They require a client to connect numbers consecutively or alternate between connecting a series of numbers and letters. Performance on the Trailmaking Test Part B has been correlated to predicting the potential for future crashes (Corrigan & Hinkelday, 1987).

Due to the risk associated with driving for the driver, passengers, and/or community, a comprehensive evaluation encompassing all performance skills and factors related to safe driving should be recommended when problems first arise. This will help establish a driving competency baseline. Open discussion and planning are critical, and of optimal benefit while the driver has the necessary insight to participate. Once a competency baseline is established, a safe mobility plan, including exploring safe transportation options in conjunction with interval re-evaluations, can be designed to monitor progression of the disease process and its impact on driving ability, and ultimately facilitate the transition to driving alternatives.

References

Carr, D. B. (1993). Assessing older drivers for physical and cognitive impairment. *Geriatrics, 48*(5), 46–51.

Carr, D., Jackson, T., Madden, D. J., & Cohen, H. J. (1992). The effect of age on driving skills. *Journal of the American Geriatrics Society, 40,* 567–573.

What strategies have you used to evaluate whether a driver with Alzheimer's can continue to drive safely? Share your experiences in the PDSIS Forum at http://otconnections.aota.org/forums/16.aspx.

Colsher, P., & Wallace, R. (1993). Geriatrics assessment and driver functioning. *Clinics in Geriatric Medicine, 9,* 365–376.

Corrigan, J. D., & Hinkelday, M. S. (1987). Relationships between parts A and B of the *Trailmaking Test*. *Journal of Clinical Psychology, 43,* 402–409.

Graca, J. L. (1986). Driving and aging. *Clinics in Geriatric Medicine, 2,* 577–589.

Hunt, L., Morris, J., Edwards, D., Wilson, B. S. (1993). Driving performance in person with mild senile dementia of the Alzheimer type. *Journal of the American Geriatrics Society, 41,* 747–753.

Hutcherson, D. (1988). Self-monitoring of driving for the elderly: Evidence for use of a driving diary. *Physical & Occupational Therapy in Geriatrics, 7,* 171–201.

Irwin, L. (1988). Elderly drivers' perceptions of their driving abilities compared to their cognitive skills and driving performance. *Physical and Occupational Therapy in Geriatrics, 7,* 83–100.

Keplinger, F. S. (1998). The elderly driver: Who should continue to drive? *Physical Medicine & Rehabilitation: State of the Art Reviews, 12,* 147–154.

Marottoli, R. (1993). Driving safety in elderly individuals. *Connecticut Medicine, 57,* 277–280.

Murray, S. L. (1997). What's happening? Driving and the elderly. *Journal of the American Academy of Nurse Practitioners, 9,* 133–136.

Panek, P., Alexander, R., Barrett, G., & Sterns, H. (1978). Age differences in perceptual style, selective attention, and perceptual-motor reaction time. *Experimental Aging Research, 4,* 377–387.

Parasuraman, R., & Nestor, P. (1993). Attention and driving. *Clinics in Geriatric Medicine, 9,* 377–387.

Ray, W., Shorr, R., & Thapa, P. (1993). Medication and the older driver. *Clinics in Geriatric Medicine, 9,* 413–438.

Reitan, R. M., & Wolfson, D. (1993). *The Halstead-Reitan Neuropsychological Test* (2nd ed.). Tucson, AZ: Neuropsychology Press.

Reuben, D. (1993). Assessment of the older driver. *Clinics in Geriatric Medicine, 9,* 449–459.

Holly Alexander, *OTR/L, CDRS, is Director of Driving Rehabilitation, Fox Rehabilitation Geriatric Therapy at Home, 7 Carnegie Plaza, Cherry Hill, New Jersey 08003; Holly.alexander@foxrehab.org.*

Alexander, H. (2011, June). TRIP Tip: Dementia and driving. *Physical Disabilities Special Interest Section Quarterly, 34*(2), 1–2.

TRIP Tip: Facilitating Occupation-Based Treatment and Assessment

■ Alfred G. Bracciano, EdD, OTR/L, FAOTA

Documenting progress and improvement is a critical step in demonstrating efficacy and appropriateness of our interventions. The need to incorporate occupation-based valued activities into the treatment of upper-extremity conditions is a key factor that is often missing. The use of a valid and reliable assessment to identify the impact of the disability on tasks and guide dialogue with the client can facilitate this process. The Disability of the Arm, Shoulder, and Hand (DASH) assessment (Institute for Work & Health, 2005) is one that should be considered.

Clinically, using tests and measures on clients with upper-extremity injury comprises 20% of a clinician's time and focus (Muenzen et al., 2002; Roth, Dimick, Kasch, Fullenwider, & Mullins, 1996). Intervention requires collecting and interpreting a variety of complex clinical data points that guide treatment and goal setting. The data interpretation also assists in determining the client's status and in identifying change over a specific period (Muenzen et al., 2002). Clinicians often overlook valid, effective self-reporting measures in which the client can identify his or her unique pain and experience and its effect on valued or functional activities (MacDermid & Tottenham, 2004). Thus, the advantage of using these instruments is that they provide the clinician with a formative evaluation to determine objective measures of function and the subjective impact of the disability on life activities.

Use of the self-reporting, 30-item DASH questionnaire can provide the clinician with a measure that identifies the impact of an upper-extremity musculoskeletal disorder on daily living tasks, work activities, and psychological factors. The DASH measures physical function and symptoms and can be downloaded from www.dash.iwh.on.ca for clinical use.

The DASH is the most extensively studied instrument in assessing upper-extremity musculoskeletal conditions and has positive ratings for all of its clinimetric properties (Bot et al., 2004). The DASH can be used for any type of upper-extremity injury and will facilitate the ability to exchange and compare results with other clinical evaluations and research data (Schoneveld, Wittink, & Takken, 2009). The DASH provides a numeric mechanism to determine pain intensity and its relationship to and effect on daily life (Chan & Spencer, 2005). DASH is also effective in detecting and differentiating the variability of the disability over time and the treatment effectiveness in clients who had surgery of the upper extremity, such as subacromial impingement or carpal tunnel syndrome (Gummesson, Atroshi, & Ekdahl, 2003).

DASH has been used to measure functional disability and to investigate ergonomic risk factors in textile workers with upper-extremity musculoskeletal conditions (Kitis, Celik, Aslan, & Zencir, 2009). The DASH links well to the International Classification of Functioning, Disability and Health framework (Silva Drummond, Ferreira Sampaio, Cotta Mancini, Noce Kirkwood, & Stamm, 2007) and is available in several languages. The DASH should be used with greater frequency and consistency to determine the impact of upper-extremity disorders on physical symptoms and functional abilities, and to assist in guiding treatment goals and interventions that are occupation based and of significance to the client.

Using a valid and reliable self-reporting instrument to measure the impact on life tasks and movements can provide the clinician with a method to determine valued activities. Identifying and quantifying these data points can facilitate clinical reasoning and discussion with the client so that valued occupational tasks and movements can be incorporated into an occupation-based approach to treatment while supporting biomechanical data. ■

References

Bot, S. D., Terwee, C. B., van der Windt, D. A., Bouter, L. M., Dekker, J., Vet, H. C. (2004). Clinimetric evaluation of shoulder disability questionnaires: A systematic review of the literature. *Annals of the Rheumatic Diseases*, *63*(4), 335–341.

Chan, J., & Spencer, J. (2005). Contrasting perspectives on pain following hand injury. *Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, 18*, 429–435, quiz 436.

Gummesson, C., Atroshi, I., & Ekdahl, C. (2003). Performance of health-status scales when used selectively or within a multi-scale questionnaire. *BMC Medical Research Methodology, 3*, 3.

Physical Disabilities

Special Interest Section Quarterly

(ISSN 1093-7234)

Published quarterly by The American Occupational Therapy Association, Inc., 4720 Montgomery Lane, Bethesda, MD 20814-3425; ajotsis@aota.org (e-mail). Periodicals postage paid at Bethesda, MD. POSTMASTER: Send address changes to *Physical Disabilities Special Interest Section Quarterly,* AOTA, PO Box 31220, Bethesda, MD 20824-1220. Annual membership dues are $225 for OTs, $131 for OTAs, and $75 for Student members. All *SIS Quarterlies* are available to members at www.aota.org.

Institute for Work & Health. (2005). *The DASH outcome measure*. Retrieved March 25, 2011, from http://www.dash.iwh.on.ca/

Kitis, A., Celik, E., Aslan, U. B., & Zencir, M. (2009). DASH questionnaire for the analysis of musculoskeletal symptoms in industry workers: A validity and reliability study. *Applied Ergonomics, 40*, 251–255.

MacDermid, J. C., & Tottenham, V. (2004). Responsiveness of the disability of the arm, shoulder, and hand (DASH) and patient-rated wrist/hand evaluation (PRWHE) in evaluating change after hand therapy. *Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, 17*, 18–23.

Muenzen, P. M., Kasch, M. C., Greenberg, S., Fullenwider, L., Taylor, P. A., & Dimick, M. P. (2002). A new practice analysis of hand therapy. *Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, 15*, 215–225.

Roth, L. P., Dimick, M. P., Kasch, M. C., Fullenwider, L., & Mullins, P. (1996). Practice analysis of hand therapy. *Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, 9*, 203–212.

Schoneveld, K., Wittink, H., & Takken, T. (2009). Clinimetric evaluation of measurement tools used in hand therapy to assess activity and participation. *Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, 22*, 221–235; quiz 236.

Silva Drummond, A., Ferreira Sampaio, R., Cotta Mancini, M., Noce Kirkwood, R., & Stamm, T. A. (2007). Linking the disabilities of arm, shoulder, and hand to the International Classification of Functioning, Disability, and Health. *Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, 20*, 336–343; quiz 344.

Alfred G. Bracciano, *EdD, OTR/L, FAOTA, is Associate Professor, Department of Occupational Therapy, Creighton University, 2500 California Plaza, Omaha, NE 68178; alfredbracciano@creighton.edu.*

Bracciano, A.G. (2011, June). TRIP Tip: Facilitating occupation-based treatment and assessment. *Physical Disabilities Special Interest Section Quarterly, 34*(2), 2–3.

TRIP Tip: Exercise and Fatigue in Cancer

■ Luis de Leon Arabit, MS, OTR/L, C/NDT, PAM, BCN, BCPR

The effectiveness of surgery, chemotherapy, and radiation therapy have significantly helped to increase the rates of cancer survival, but these treatments also cause deleterious effects on healthy tissues, resulting in acute and chronic physiological and psychological symptoms (Hsieh et al., 2008). Fatigue (i.e., lack of energy, muscle weakness, somnolence, dysphoric mood, impaired cognition) has been considered the most prevalent and distressing symptom of cancer therapies and is the most common unmanaged symptom (Hsieh et al., 2008). Berger (as cited in Hsieh et al., 2008) stated that possible causes of fatigue include pain, problems with sleeping, infection, poor nutrition, medication side effects, anemia, and deconditioning. These symptoms often lead to a diminished level of activity tolerance, adversely affecting an individual's resumption of occupational roles and ability to perform meaningful activities of daily living. Given the manifestations of fatigue, the question that often comes up is, "Do exercise interventions help to improve the overall function and, therefore, quality of life of persons with cancer?"

A growing body of evidence indicates the benefits of exercise as a rehabilitation intervention for patients with cancer in terms of managing treatment-related symptoms, regaining physical function, and improving quality of life. For example, Stevinson and Fox (2006) researched the effects of a group-based exercise rehabilitation program for persons with any type of cancer and found that several participants reported increased physical activity, improved fitness, reduced fatigue, and enhanced psychological well-being. The positive features of the group exercise program included the variety and scope of the exercises and the empathetic, yet positive approach of the instructors. The participants also highly valued the small group format because they received social support and inspiration from one another. Finally, several participants believed that the exercise interventions served as an introduction that would eventually lead to them becoming "habitual exercisers."

The results of a study by Hsieh et al. (2008) of patients with breast cancer suggested that moderate-intensity, individualized, prescriptive exercise maintains or improves cardiopulmonary function with concomitant reductions in fatigue, regardless of the type of cancer treatment. In their study, subjects were divided into four groups based on the specific type of clinical treatment: (a) surgery alone; (b) surgery and chemotherapy; (c) surgery and radiation; and (d) surgery, chemotherapy, and radiation. Their findings showed that cardiopulmonary function significantly increased in all the four study groups after exercise training and that resting heart rate and forced vital capacity significantly improved in patients who had received surgery, chemotherapy, and radiation therapy. Psychologically, significant reductions in behavioral, affective, sensory, cognitive and mood, and total fatigue scale scores in all the three groups that had received cancer treatment with surgery were also apparent as a result of the exercise intervention. However, the breast cancer survivors in the surgery alone group showed significant reductions in behavioral, affective and total fatigue scale scores but not in sensory and cognitive and mood fatigue scale scores after exercise training. The positive outcomes and effects of exercise interventions for persons with cancer in reducing fatigue and other physical and psychological symptoms is evident in the literature, whether conducted in a group or an individualized format. The findings from these studies highlight the need for clinicians to stress the importance of exercise interventions as an integral part of rehabilitation as we work with individuals and populations with various types of cancer. Clinicians can be proactive in designing and implementing individualized or group exercise rehabilitation programs that aim to reduce the debilitating symptoms and effects of fatigue from cancer and, ultimately, to facilitate the client's participation and engagement in occupations that give meaning to life. ■

References

Hsieh, C. C., Sprod, L. K., Hydock, D. S., Carter, S. D., Hayward, R., & Schneider, C. M. (2008). Effects of a supervised exercise intervention on recovery from treatment regimens in breast cancer survivors. *Oncology Nursing Forum, 35*, 909–915.

Stevinson, C., & Fox, K. R. (2006). Feasibility of an exercise rehabilitation programme for cancer patients. *European Journal of Cancer Care, 15*, 386–396.

Luis de Leon Arabit, *MS, OTR/L, C/NDT, PAM, BCN, BCPR, is Coordinator, Occupational Therapy, Pediatric Rehabilitation Services and The Cleft Palate Program, White Memorial Medical Center, 1720 Cesar Chavez Avenue, Los Angeles, California 90033; arabitll@ah.org.*

Arabit, L. L. (2011, June). TRIP Tip: Exercise and fatigue in cancer. *Physical Disabilities Special Interest Section Quarterly*, *34*(2), 3.

AOTA®
The American Occupational
Therapy Association, Inc.
PO Box 31220
Bethesda, MD 20824-1220

PERIODICALS
POSTAGE
PAID AT
BETHESDA
MD

Living Life To Its Fullest®

OCCUPATIONAL THERAPY

PD