SAC
Speech-Language & Audiology Canada

Position Statement

Role of Speech-Language Pathologists in Concussion Management Position Statement

Position

It is the position of Speech-Language & Audiology Canada (SAC) that speech-language pathologists (S-LPs) are essential to quality, person-centred, interprofessional concussion care. S-LPs have a primary role in providing individualized, evidence-informed intervention to address the diverse communication and cognitive difficulties that affect day-to-day functioning following concussion, including the identification, assessment and treatment of cognitive-communication disorders.

Background

Awareness and understanding of the impact of concussion – a form of traumatic brain injury - is increasing in Canada. Physical, cognitive, communicative and emotional symptoms may follow a concussion. Although these difficulties usually resolve within four weeks of the injury, approximately 20% of individuals experience ongoing problems that interfere with return to regular activity (Ontario Neurotrauma Foundation [ONF], 2018).

A broad range of communication impairments can result from the complex interplay of cognitive (e.g., attention, memory, organization, reasoning, executive function), emotional (e.g., anxiety, depression) and physical (e.g., sleep, fatigue, pain, visual, auditory) symptoms that occur after concussion (MacDonald, 2017). Cognitive-communication disorders are a specific type of communication difficulty that result from cognitive impairments (Togher et al., 2014) and occur frequently after concussion (Hardin & Kelly, 2019; Eshel, Bowles, & Ray, 2019; Sohlberg & Ledbetter, 2016). Cognitive-communication disorders can affect auditory comprehension and information processing, verbal expression and discourse, social communication, reading comprehension and written expression (Białuńska & Salvatore, 2017; Binder, Spector, & Youngjohn, 2012; Crewe-Brown et al., 2011; Dines & Hux, 2018; Parrish et al., 2009; Popsecu et al., 2017; Ratiu & Azuma, 2017; Sohlberg, Griffiths & Fickas, 2014; Zakzanis, McDonald & Troyer, 2011). Stuttering and motor speech difficulties may also occur, although with less frequency than cognitive-communication disorders (Binder et al., 2012; Cherry & Gordon, 2017; Jang & Seo, 2016; Norman, Jaramillo, Amuan, Wells, Eapen, & Pugh, 2013; Roth, Cornis-Pop, & Beach, 2015). Communication and cognitive difficulties can significantly impact an individual's day-to-day functioning, social relationships and well-being, as well as return to work, school and play (MacDonald, 2017).

© 2019, SAC
Copyright is held by Speech-Language & Audiology Canada. No part of this publication may be reprinted, reproduced, stored in a retrieval system, or transcribed in any manner (electronic, mechanical, photocopy, or otherwise) without written permission from SAC. Contact pubs@sac-oac.ca. To cite, appropriate credit must be given (SAC, publication name, article title, volume number, issue number and page number[s]).

Speech-language pathologists (S-LPs) have specialized knowledge of communication disorders that follow traumatic brain injuries of all severities, as well as the interaction between cognition and communication (Katz & Kennedy, 2002). S-LPs are established members of brain injury rehabilitation teams (Togher et al., 2014; Scottish Intercollegiate Guidelines Network, 2013), and participate in interdisciplinary concussion care (Eshel et al., 2019; Hardin & Kelly, 2019; Ketcham et al., 2017; Knollman-Porter et al., 2019; Martino, Gardiner, & Wiseman-Hakes, 2019; ONF, 2017, 2018, 2019; Vargo, Vargo, Gunzler, & Fox, 2016) to provide support to people experiencing communication and cognitive difficulties.

While S-LPs may contribute to general concussion screening (Salvatore & Fjordbak, 2011; Dachtyl & Morales, 2017), speech-language pathology interventions primarily focus on alleviating prolonged communication and cognitive symptoms. The S-LP's role in concussion management includes assessment, as well as education and counselling for people with a concussion and their families. Speech-language pathology interventions emphasize functional reactivation of communication and cognitive skills, and include individualized strategies, accommodations and environmental modifications that facilitate optimal communication in daily activities (Eshel et al., 2019; Hardin & Kelly, 2019; Ketcham et al., 2017; Knollman-Porter, Constantinidou, Beardslee, & Dailey, 2019; Krug & Turkstra, 2015; Martino, Gardiner & Wiseman-Hakes, 2019). Evidence supports a range of speech-language pathology interventions for communication and cognitive difficulties (Cicerone et al., 2011; Cooper et al., 2017; Dahlberg et al., 2007; Dines & Hux, 2018, Kennedy et al., 2008; Mattingly, 2015; Sohlberg & Ledbetter, 2016; Vas et al., 2016).

Concussions are diagnosed by physicians, nurse practitioners or neuropsychologists. S-LPs recognize that establishing a diagnosis may be challenging in some instances (Harmon et al., 2019). Where the diagnosis of a concussion has not been confirmed or is contentious, S-LPs use judicious discussion of diagnosis and positive education while providing strategies to address the presenting communication and cognitive symptoms. S-LPs also collaborate with and recommend referrals to other health-care professionals (e.g., audiologists, occupational therapists, optometrists, physiotherapists and psychologists) to address the co-occurring conditions that are typical after a concussion.

SAC recommends consultation with S-LPs in the development of a pan-Canadian approach to concussion. Specifically, speech-language pathology services should be available as part of provincial/territorial concussion management across the lifespan, including involvement in return to learning, work and everyday life. SAC advocates for greater awareness of the impact of concussion on communication and recommends evaluation of communicative competence within concussion screening procedures. In addition, speech-language pathology university program curricula should address concussion management as a component of comprehensive brain injury education. Professional development opportunities should also be available for practicing clinicians. Development of speech-language pathology clinical practice guidelines and investment in research will help to advance speech-language pathology concussion management practices.

Committee Members

Elizabeth Skirving, Chair, MS, M.Ed., S-LP(C)

Jessica Harasym O'Byrne, MSLP, S-LP(C)

Sheila MacDonald, M.Cl.Sc., S-LP(C)

Martha Vowles, MA, M.Sc., S-LP(C)

Penny Welch-West, M.Cl.Sc., S-LP(C)

Meredith Wright, SAC Staff Liaison, PhD, S-LP

© 2019, SAC
Copyright is held by Speech-Language & Audiology Canada. No part of this publication may be reprinted, reproduced, stored in a retrieval system, or transcribed in any manner (electronic, mechanical, photocopy, or otherwise) without written permission from SAC. Contact pubs@sac-oac.ca. To cite, appropriate credit must be given (SAC, publication name, article title, volume number, issue number and page number[s]).

References

Białuńska, A., & Salvatore, A. P. (2017). The auditory comprehension changes over time after sport related concussion can indicate multisensory processing dysfunctions. *Brain and Behavior, 7(12),* e00874.

Binder, L. M., Spector, J., & Youngjohn, J. R. (2012). Psychogenic stuttering and other acquired nonorganic speech and language abnormalities. *Archives of Clinical Neuropsychology, 27(5)*, 557-568.

Cherry, J. C., & Gordon, K. E. (2017). Stuttering as a symptom of concussion: Confirmation of association using nontraditional information sources. *Pediatric Emergency Care, 33(11)*, e137-e139.

Cicerone, K. D., Langenbahn, D. M., Braden, C., Malec, J. F., Kalmar, K., Fraas, M., ... & Azulay, J. (2011). Evidence-based cognitive rehabilitation: Updated review of the literature from 2003 through 2008. *Archives of Physical Medicine and Rehabilitation, 92(4)*, 519-530.

Cooper, D. B., Bowles, A. O., Kennedy, J. E., Curtiss, G., French, L. M., Tate, D. F., & Vanderploeg, R. D. (2017). Cognitive rehabilitation for military service members with mild traumatic brain injury: A randomized clinical trial. *Journal of head trauma rehabilitation, 32(3)*, E1-E15.

Dachtyl, S. A., & Morales, P. (2017). A collaborative model for return to academics after concussion: Athletic training and speech-language pathology. American *Journal of Speech-Language Pathology, 26(3)*, 716-728.

Dahlberg, C. A., Cusick, C. P., Hawley, L. A., Newman, J. K., Morey, C. E., Harrison-Felix, C. L., & Whiteneck, G. G. (2007). Treatment efficacy of social communication skills training after traumatic brain injury: A randomized treatment and deferred treatment controlled trial. *Archives of Physical Medicine and Rehabilitation, 88(12)*, 1561-1573.

Dinnes, C., & Hux, K. (2018). A multicomponent writing intervention for a college student with mild brain injury. *Communication Disorders Quarterly, 39(4)*, 490-500.

Eshel, I., Bowles, A. O., & Ray, M. R. (2019). Rehabilitation of cognitive dysfunction following traumatic brain injury. *Physical Medicine and Rehabilitation Clinics, 30(1)*, 189-206.

Hardin, K. Y., & Kelly, J. P. (2019). The role of speech-language pathology in an interdisciplinary care model for persistent symptomatology of mild traumatic brain injury. *Seminars in Speech and Language, 40(1)*, 65-78.

Harmon, K. G., Clugston, J. R., Dec, K., Hainline, B., Herring, S., Kane, S. F., ... & Putukian, M. (2019). American Medical Society for Sports Medicine position statement on concussion in sport. *British Journal of Sports Medicine, 53(4)*, 213-225.

Jang, S. H., & Seo, Y. S. (2016). Dysarthria due to injury of the corticobulbar tract in a patient with mild traumatic brain injury. *American Journal of Physical Medicine & Rehabilitation, 95(11)*, e187-e188.

© 2019, SAC
Copyright is held by Speech-Language & Audiology Canada. No part of this publication may be reprinted, reproduced, stored in a retrieval system, or transcribed in any manner (electronic, mechanical, photocopy, or otherwise) without written permission from SAC. Contact pubs@sac-oac.ca. To cite, appropriate credit must be given (SAC, publication name, article title, volume number, issue number and page number[s]).

Katz, R., & Kennedy, M. R. (2002). Evidence-based practice guidelines for cognitive-communication disorders after traumatic brain injury: initial committee report (ANCDS Bulletin Board). *Journal of Medical Speech-Language Pathology, 10(2)*, ix-ix.

Kennedy, M. R., Coelho, C., Turkstra, L., Ylvisaker, M., Moore Sohlberg, M., ... & Kan, P. F. (2008). Intervention for executive functions after traumatic brain injury: A systematic review, meta-analysis and clinical recommendations. *Neuropsychological rehabilitation, 18(3)*, 257-299.

Ketcham, C. J., Bowie, M., Buckley, T. A., Baker, M., Patel, K., & Hall, E. E. (2017). The value of speech-language pathologists in concussion management. *Current Research: Concussion, 4(1)*, e8-e13.

Knollman-Porter, K., Constantinidou, F., Beardslee, J., & Dailey, S. (2019). Multidisciplinary management of collegiate sports-related concussions. *Seminars in Speech and Language, 40(1)*, 3-12.

Krug, H., & Turkstra, L. S. (2015). Assessment of cognitive-communication disorders in adults with mild traumatic brain injury. *Perspectives on Neurophysiology and Neurogenic Speech and Language Disorders, 25(1)*, 17-35.

MacDonald, S. (2017). Introducing the model of cognitive-communication competence: A model to guide evidence-based communication interventions after brain injury. *Brain Injury, 31(13-14)*, 1760-1780.

Martino, C., Gardiner, S., & Wiseman-Hakes, C. (2019). Communication and cognitive-communication assessment and management in mild traumatic brain injury/concussion: A scoping review. *Brain Injury, 33*, 98-98.

Mattingly, E. O. (2015). Dysfluency in a service member with comorbid diagnoses: a case study. *Military Medicine, 180(1)*, e157-e159.

Norman, R. S., Jaramillo, C. A., Amuan, M., Wells, M. A., Eapen, B. C., & Pugh, M. J. (2013). Traumatic brain injury in veterans of the wars in Iraq and Afghanistan: Communication disorders stratified by severity of brain injury. *Brain Injury, 27(13-14)*, 1623-1630.

Ontario Neurotrauma Foundation (2019). *The Living Guideline for Diagnosing and Managing Pediatric Concussion*. Toronto: Ontario Neurotrauma Foundation.

Ontario Neurotrauma Foundation (2017). *Standards for Post-Conucssion Care: From Diagnosis to the Interdisciplinary Clinic*. Toronto: Ontario Neurotrauma Foundation.

Ontario Neurotrauma Foundation (2018). *Guideline for Concussion/Mild Traumatic Brain Injury and Persistent Symptoms: Healthcare Professional Version*. Toronto: Ontario Neurotrauma Foundation.

Parrish, C., Roth, C., Roberts, B., & Davie, G. (2009). Assessment of cognitive-communicative disorders of mild traumatic brain injury sustained in combat. *Perspectives on Neurophysiology and Neurogenic Speech and Language Disorders, 19(2)*, 47-57.

© 2019, SAC
Copyright is held by Speech-Language & Audiology Canada. No part of this publication may be reprinted, reproduced, stored in a retrieval system, or transcribed in any manner (electronic, mechanical, photocopy, or otherwise) without written permission from SAC. Contact pubs@sac-oac.ca. To cite, appropriate credit must be given (SAC, publication name, article title, volume number, issue number and page number[s]).

Popescu, M., Hughes, J. D., Popescu, E. A., Mikola, J., Merrifield, W., DeGraba, M., ... & DeGraba, T. J. (2017). Activation of dominant hemisphere association cortex during naming as a function of cognitive performance in mild traumatic brain injury: Insights into mechanisms of lexical access. *NeuroImage: Clinical, 15*, 741-752.

Ratiu, I., & Azuma, T. (2017). Language control in bilingual adults with and without history of mild traumatic brain injury. *Brain and Language, 166*, 29-39.

Roth, C. R., Cornis-Pop, M., & Beach, W. A. (2015). Examination of validity in spoken language evaluations: Adult onset stuttering following mild traumatic brain injury. *Neurorehabilitation, 36(4)*, 415-426.

Salvatore, A. P., & Fjordbak, B. S. (2011). Concussion management: The speech-language pathologist's role. *Journal of Medical Speech-Language Pathology, 19(1)*, 1-13.

Scottish Intercollegiate Guidelines Network (SIGN) (2013). *Brain Injury Rehabilitation in Adults* (SIGN publication no. 130). Edinburgh: SIGN. Retrieved from **http://www.sign.ac.uk**

Sohlberg, M. M., Griffiths, G. G., & Fickas, S. (2014). An evaluation of reading comprehension of expository text in adults with traumatic brain injury. *American Journal of Speech-Language Pathology, 23(2)*, 160-175.

Sohlberg, M. M., & Ledbetter, A. K. (2016). Management of persistent cognitive symptoms after sport-related concussion. *American Journal of Speech-Language Pathology, 25(2)*, 138-149.

Togher, L., Wiseman-Hakes, C., Douglas, J., Stergiou-Kita, M., Ponsford, J., Teasell, R., ... & Turkstra, L. S. (2014). INCOG recommendations for management of cognition following traumatic brain injury, part IV: Cognitive communication. *The Journal of Head Trauma Rehabilitation, 29(4)*, 353-368.

Vargo, M. M., Vargo, K. G., Gunzler, D., & Fox, K. W. (2016). Interdisciplinary rehabilitation referrals in a concussion clinic cohort: An exploratory analysis. *PM&R, 8(3)*, 241-248.

Vas, A., Chapman, S., Aslan, S., Spence, J., Keebler, M., Rodriguez-Larrain, G., ... & Krawczyk, D. (2016). Reasoning training in veteran and civilian traumatic brain injury with persistent mild impairment. *Neuropsychological Rehabilitation, 26(4)*, 502-531.

Zakzanis, K. K., McDonald, K., & Troyer, A. K. (2011). Component analysis of verbal fluency in patients with mild traumatic brain injury. *Journal of Clinical and Experimental Neuropsychology, 33(7)*, 785-792.

© 2019, SAC
Copyright is held by Speech-Language & Audiology Canada. No part of this publication may be reprinted, reproduced, stored in a retrieval system, or transcribed in any manner (electronic, mechanical, photocopy, or otherwise) without written permission from SAC. Contact pubs@sac-oac.ca. To cite, appropriate credit must be given (SAC, publication name, article title, volume number, issue number and page number[s]).