



Published in final edited form as:

*CNS Spectr.* 2018 June ; 23(3): 194–195. doi:10.1017/S1092852918000950.

## Additional Occupational Therapy Considerations for Functional Neurological Disorders: A Potential Role for Sensory Processing

Jessica Ranford, MS, OTR/L<sup>1,2,\*</sup>, David L. Perez, MD, MMSc<sup>2,3</sup>, and Julie MacLean, OTR/L<sup>1,2,\*</sup>

<sup>1</sup>Department of Occupational Therapy, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

<sup>2</sup>Functional Neurology Research Group, Cognitive Behavioral Neurology Unit, Department of Neurology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

<sup>3</sup>Neuropsychiatry Unit, Department of Psychiatry, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

### To the Editor

We have read with interest the article entitled “Occupational therapy for functional neurological disorders: a scoping review and agenda for research” by Gardiner and colleagues published in *CNS Spectrums*.<sup>1</sup> We congratulate the authors on starting the critically important conversation to broaden understanding of functional neurological disorders (FND) within the occupational therapy (OT) community, and for proposing an assessment, management and research agenda for OT in patients with FND. We agree that occupational therapists, as mind-body clinicians, are well positioned to be a vital member of the interdisciplinary treatment team for FND. In their review, the authors suggest a biopsychosocial framework to conceptualize patients with FND. While we agree with and use this highly valuable approach, we would also like to highlight that sensory processing impairments can be important co-morbid perpetuating factors that are useful to assess and treat in the context of an individualized treatment plan for patients with FND.

Sensory Integration Theory was developed by Jean Ayers in the 1970’s and is a pillar of OT interventions, especially in pediatrics.<sup>2</sup> The basis of Sensory Integration Theory is that an individual’s ability to process sensory information from their own bodies and the outside world allows one to adapt and interact effectively with the environment. An important component of sensory processing is sensory modulation, which is defined as the regulation of specific behavioral responses to sensory stimuli. Disorders of sensory modulation can occur when behaviors are not graded to the situational demands, with deficits in sensory modulation leading to a range of maladaptive emotional and attentional responses. Notably,

**Corresponding Author:** David L. Perez MD, MMSc, MGH Departments of Neurology & Psychiatry, 55 Fruit Street, Boston, MA, 02114, Tel: 617-726-2000, dlperez@partners.org.

\* indicates equal contributions

**Disclosures/Conflicts of Interest:**

None

our group has previously proposed that disturbances in the integration of sensory-motor, cognitive and affective processes may play a role in the pathophysiology of FND.

Over the last few decades, there has been growing research linking sensory modulation disorders (specifically sensory defensiveness and sensory-over-responsiveness) with depression, anxiety, post-traumatic stress disorder and dissociation. Sensory modulation difficulties, and sensory defensiveness more specifically, can result in poor learning and decreased cognitive performance. In our collective clinical experience caring for patients with FND, we have encountered individuals who endorse sensory modulation impairments. For example, during initial OT assessments, we have observed that some patients with FND complain of cognitive difficulties and sensory sensitivities such as hypersensitivity and over-responsiveness to sounds, light, moving targets and crowded environments. Many of these same individuals offer limited self-generated coping strategies for their sensory sensitivities, and we provide patients with the Sensory Preference Checklist to identify alerting, grounding, irritating and calming sensory stimuli across the senses.<sup>3</sup> The Adult/Adolescent Sensory Profile has also proven in our experience to be a useful self-evaluation tool of behavioral responses to everyday sensory experiences, which helps patients and clinicians gain awareness of the individual's sensory processing patterns.<sup>4</sup> Gathering this information allows the development of individualized sensory-based treatment strategies to help manage somatic, affective and dissociative symptoms in patients with FND. Therefore, we suggest that gathering an understanding of the sensory processing profiles of patients with FND including triggers, warning signs and typically used coping strategies are important for developing successful treatments.

In the Gardiner et al article, the multidisciplinary approach to treatment of FND emphasized in part use of education, distraction techniques, retraining normal "automatic" patterns, and incorporating cognitive behavioral therapy elements. The authors highlight OT as particularly important for combining physical and psychological components, grading activities and the development of coping/problem solving strategies. While we use this well outlined approach, we have also found sensory-based interventions specifically useful to improve sensory processing and positively impact attention, emotional regulation and coping in patients with FND. The sensory-based interventions can also be used as a distraction technique to enhance normal movements. This is in line with Ayers' original theory that using sensory-based interventions can help regulate sensory processing, improve body awareness and reinforce normal movements.<sup>2</sup> For example, we have observed reductions in hand tremors while engaging in use of hand-based sensory tools such as manipulation of meditation balls, and have also appreciated improved focus and participation in activities during OT sessions with core stabilization and rocking on a large sensory ball. Using the patient's self-identified sensory processing patterns and preferences, occupational therapists can help patients successfully implement a range of sensory interventions to assist in appropriately modulating sensory information during daily activities; the use of specific 'as-needed tools' that can be used when a patient is acutely symptomatic or experiences early-warning symptoms as is common in patients with paroxysmal functional movement disorders and psychogenic nonepileptic seizures can also be explored. At the individual patient-level, use of these tools has anecdotally resulted in improved participation in daily activities even when individuals continue to experience functional neurologic symptoms.

This brings us to our final comment, which is the importance of using occupational-therapy based outcome measures to monitor patient progress. While no measure has been consistently adopted in the field, we currently use in OT the Canadian Occupational Performance Measure (COPM) on initial assessments and in follow-up sessions to measure patients' perceived change in and satisfaction with performance. This same measure was used to measure clinical response in a specific multidisciplinary program aimed at addressing physical and psychological difficulties in patients with FND.<sup>5</sup> Future research should investigate the optimal set of assessment tools needed to aid baseline OT characterization and longitudinal follow-up in patients with FND.

In conclusion, we agree that OT is an important component of the interdisciplinary approach to the assessment and management of patients with FND. In addition to the excellent points highlighted by Gardiner and colleagues, we suggest that screening for sensory modulation impairments and, when present, introducing sensory-based interventions are important aspects of the OT approach to patients with FND that warrant additional research.

## Acknowledgments

### Acknowledgements/Funding:

D.L.P. was funded by the National Institute of Mental Health Grant 1K23MH11983-01A1, Sidney R. Baer Jr. Foundation and the Massachusetts General Hospital Physician-Scientist Development Award.

## References

1. Gardiner P, MacGregor L, Carson A, Stone J. Occupational therapy for functional neurological disorders: a scoping review and agenda for research. *CNS Spectr.* 2017;1–8.
2. Ayers, J. *Sensory Integration and the Child.* Los Angeles, CA: Western Psychological Services; 1979.
3. Champagne, T. *Sensory Modulation & Environment: Essential Elements of Occupation.* 3. Sydney, Australia: Pearson Australia Group; 2011.
4. Brown, C., Dunn, W. *Adolescent/Adult Sensory Profile Manual.* San Antonio, TX: Psychological Corporation; 2002.
5. Dahlhauser SE, Theuer A, Hollman J. Satisfaction and Occupational Performance in Patients with Functional Movement Disorder. *The Open Journal of Occupational Therapy.* 2017; 5(2):1–5.