



# Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience

## Clinical Corner

D. Corydon Hammond Associate Editor PhD  
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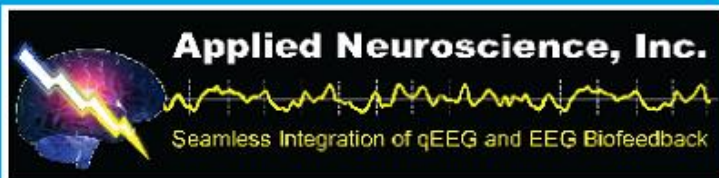
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## CLINICAL CORNER

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D. Corydon Hammond, PhD, Associate Editor

*The purpose of the Clinical Corner is to provide responses to clinically oriented questions that may not, in many cases, have been evaluated yet by research. Therefore, the personal opinions expressed in the column are exactly that, the opinions of the individual authors, often based on their clinical experience. The opinions shared belong to the authors and are not necessarily those of the International Society for Neurofeedback and Research or the Journal of Neurotherapy. Nonetheless, it is hoped that the diversity of opinion expressed in this column will stimulate thought and the further exchange of ideas. To submit a clinical corner paper, please refer to <http://www.isnr.org/authors.cfm> for instructions. Readers are invited to send questions for consideration to D. Corydon Hammond, PhD, University of Utah School of Medicine, PM&R, Salt Lake City, UT 84132. E-mail: [D.C.Hammond@utah.edu](mailto:D.C.Hammond@utah.edu)*

In the Clinical Corner in this issue, we have a lengthy case series by Tom Collura and his colleagues. It focuses on live Z-score training, which is a neurofeedback innovation that is data based and has been evolving over the last 3 years. Although this is not a controlled study, the impressive results seen in this case series clearly show its clinical promise.

On another subject, in my clinical practice I have treated three schizophrenic patients, with two of the three showing very definite improvement in symptoms and functioning. Thus I am delighted that we have another contribution in this issue from an individual

who undoubtedly has more actual clinical experience in using neurofeedback with schizophrenia than anyone in the field. Dr. Angelo Bolea describes his unique experiences in working with back ward, chronic schizophrenics. Research has shown (see Hammond, 2010) that there is great heterogeneity in the EEG patterns of schizophrenics, with five to six different subtypes. Thus in anticipating further work with this population in the future, I would suggest that quantitative EEG evaluation (and live Z-score training) may prove especially valuable in providing clinicians with valuable information to assist in the individualization of treatment with psychotic patients. However, even without having QEEG information available, Dr. Bolea's clinical experiences and persistence have shown impressive outcomes that are exciting and provide us with encouragement that neurofeedback holds promise as another treatment modality with schizophrenia. Although this is not a controlled study, it represents a step beyond previous research (Gruzelier, 2000; Gruzelier et al., 1999; Schneider et al., 1992), which has simply shown that schizophrenics have the potential to do neurofeedback training. It is a welcome addition to our literature.

In this issue we also have a third Clinical Corner contribution by Sarah Aguilar-Prinsloo and Randall Lyle that focuses on not just objective measures of change but the subjective perceptions of change found in long-term follow-ups with patients who were treated with a combination of neurofeedback and counseling.

## REFERENCES

- Gruzelier, J. (2000). Self regulation of electrocortical activity in schizophrenia and schizotypy: A review. *Clinical Electroencephalography*, 31(1), 23–29.
- Gruzelier, J., Hardman, E., Wild, J., Zaman, R., Nagy, A., & Hirsch, S. (1999). Learned control of interhemispheric slow potential negativity in schizophrenia. *International Journal of Psychophysiology*, 34, 341–348.
- Hammond, D. C. (2010). The need for individualization in neurofeedback: Heterogeneity in QEEG patterns associated with diagnoses and symptoms. *Applied Psychophysiology and Biofeedback*, 35, 31–36.
- Schneider, F., Rockstroh, B., Heimann, H., Lutzenberger, W., Mattes, R., Elbert, T., et al. (1992). Self-regulation of slow cortical potentials in psychiatric patients: Schizophrenia. *Biofeedback & Self-Regulation*, 17, 277–292.