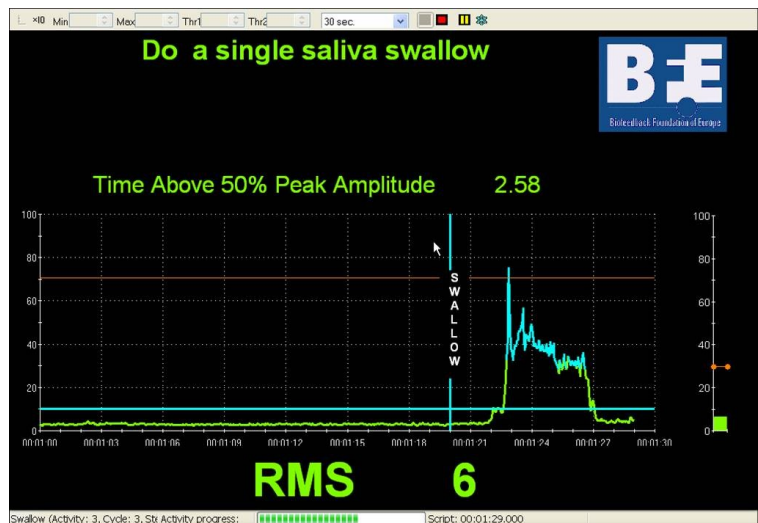
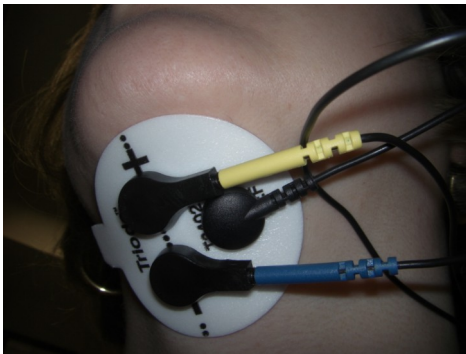
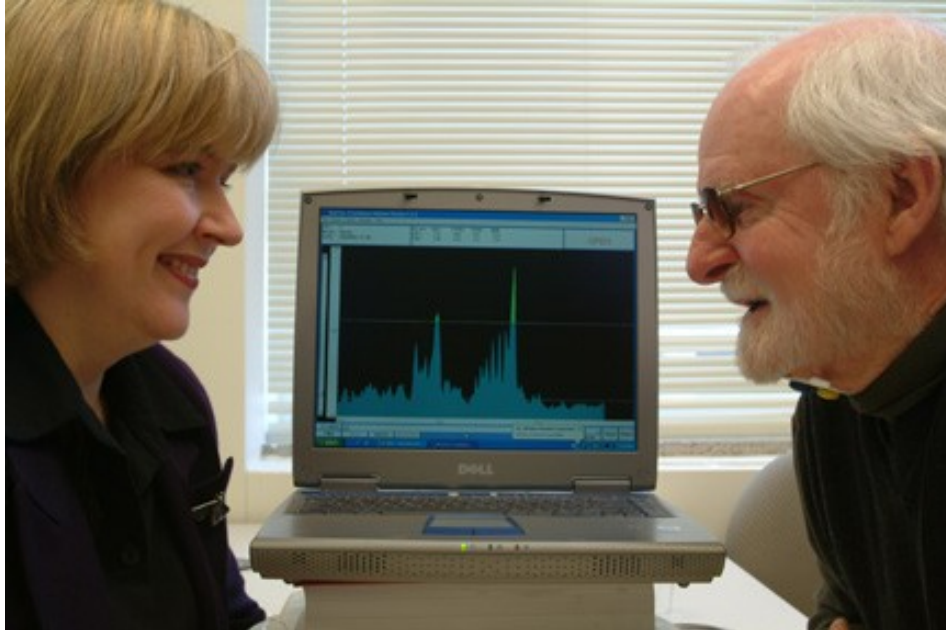


# Dysphagia

by **Catriona Steele, Ph.D. , CCC-SLP, BRS-S, S-LP(C), Reg. CASLPO.**



**LIMITED EDITION SOFTWARE SUITE**



**Biofeedback Foundation of Europe**  
*Learn From the Best™*

---

## About the Limited Edition Software

The Limited Edition "Dysphagia" Software published by the BFE was designed by Dr. Steele and includes a comprehensive manual to cover every step from connecting the equipment to installing the software, to recording an initial assessment and printing a report. It includes four specific dysphagia protocols: a) a baseline assessment protocol; b) a regular effort target practice protocol; c) an effortful swallow target practice protocol; and d) a Mendelsohn Maneuver protocol. Each protocol lasts 2 ½ minutes, and involves five 30-second windows. The sequence in each 30-second window starts with a 20-second rest period, and then an instruction to perform the target task once within the final 10-seconds. The software was developed to lead the clinician through the treatment protocol in a prescribed order.



## About The Author

**Dr. Catriona M. Steele, Ph.D., CCC-SLP, BRS-S, S-LP(C), Reg. CASLPO.**

Dr. Steele is a Senior Scientist and Director of the Swallowing Rehabilitation Research Laboratory at the Toronto Rehabilitation Institute. She is an Associate Professor in the Graduate Department of Speech-Language Pathology at the University of Toronto. Over the past 6 years she has received particular recognition for her research on tongue movements in swallowing and has developed a reputation as an expert on the use of texture modifications as an intervention for dysphagia. Dr. Steele is known across Canada and internationally as an outspoken advocate of evidence-based practice by speech-language pathologists. Dr. Steele currently serves

as Coordinator of the American Speech-Language Hearing Association's Special Interest Division 13 (Swallowing and Swallowing Disorders). She is Past President of the Canadian Association of Speech-Language Pathologists and Audiologists and a past board member of the Dysphagia Research Society.

## Documentation

The Dysphagia Suite includes information on the use of the training and review screens, and how to make the most of the assessment protocols.

## Sample Data

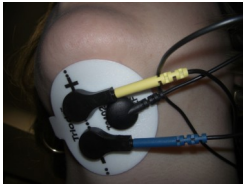
The suite contains data from four different clients each with a different set of problems that were addressed with SEMG biofeedback. You can replay sessions with different training screens and practice how to use the training and review screens and the protocols.

## Suite Based On Experience

This Limited Edition software suite comes from Dr. Steele's research and clinical experience with a wide variety of clients that have benefitted from sEMG biofeedback in their rehabilitation. Dr. Steele has designed a standardized dysphagia treatment protocol involving *Effortful Swallows* and *Mendelsohn Maneuvers* for patients who present with radiographically confirmed pharyngeal residue (i.e., incomplete clearance of food or liquid from the throat during swallowing) related to a recent stroke or acquired brain injury (not more than 6 months prior to enrollment in her study). It is recommended that clients receive 20 sessions of therapy, scheduled twice weekly, in which the selected maneuvers are practiced using surface EMG biofeedback. Outcomes should be measured using a standardized videofluoroscopic swallowing study. In particular, the outcomes that are expected following this treatment protocol are improvements in the range of hyolaryngeal excursion and a reduction in the severity of pharyngeal residues.

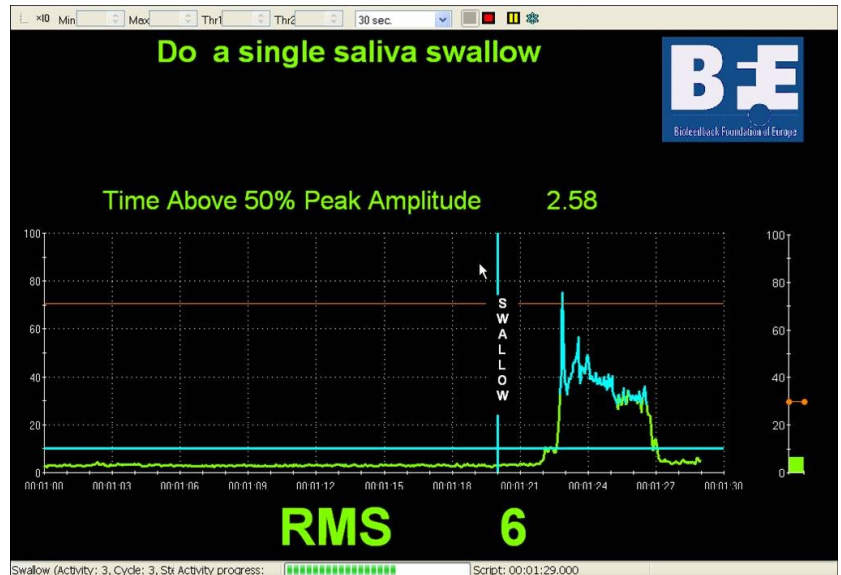
Dr. Steele recommends that a treatment session should include 60 swallows, practiced in 12 sets of 5 swallows. The protocol involves a progression of tasks from "regular effort saliva swallows" to "effortful saliva swallows" and "Mendelsohn Maneuver saliva swallows".

### Surface Electromyography sEMG



Surface electromyography (sEMG) is a technique for measuring the timing and amplitude of muscle contraction via electrodes placed on the skin surface. This

technique can be used to provide visual biofeedback on a computer screen during swallowing therapy, by displaying a signal representing the activity of the collective suprahyoid muscles (mylohyoid, geniohyoid, genioglossus, anterior belly digastric) during swallowing. An adhesive triode electrode patch is attached under the participant's chin with the positive and negative electrodes in midline, positioned just anterior to the hyoid bone. The reference (ground) electrode is positioned laterally. The electrodes are attached to an EMG device (MyoTrac Infiniti, Thought Technology, Montreal) using a sensor cable and the signal from the device is registered on a computer using the BFE Limited Edition software. The electrodes are shown in the picture to the left. They have standard 2cm spacing of silver silver chloride electrodes, backed with nickel plated brass snaps to prevent corrosion when connected to pre-amplifiers. (Available from Thought Technology in boxes of 100.)



#### COMPATIBLE WITH:

- MyoTrac Infiniti™
- MyoTrac3



### Hardware & Software Configurations

This Limited Edition suite offers channel sets for both the MyoTrac Infiniti™ and the MyoTrac 3™ encoders. The powerful dual channel MyoTrac Infiniti™ sEMG (Surface Electromyography) system captures sEMG data in real time by connecting directly to the PC USB cable, to provide real-time, computerized biofeedback and data acquisition for clinical observation and biofeedback.

The MyoTrac3™ system requires only a USB port, and can be used with any IBM-compatible laptop or desktop PC (not included). It is a highly sensitive dual channel sEMG biofeedback device that allows clinicians to monitor two muscle sites simultaneously. Can be used with the Tele-Infiniti™ (T9595) bluetooth Class II telemetry unit for wireless recording to the computer up to 10+ meters (30+ feet) away.

Whether you choose the MyoTrac Infiniti or the MyoTrac3, the system includes either the Rehab or Continence suite from Thought Technology and Version 5 of the BioGraph Infiniti software. This version provides a Quick Start Button and Favorite Presets that have been put to use in this version of the BFE Limited Edition Suite. BioGraph's overall compatibility with Microsoft's Windows Vista was improved and files can now be found using a desktop shortcut, called "BioGraph Infiniti Data Folder", to give easy access to these folders.

**AVAILABLE NOW!**

**BioGraph**  
INFINITI  
**5.0**

---

## Enhance your practice with specialized software.

When you purchase a BFE Limited Edition Suite, you not only invest in an ensemble of specialized channel sets, screens and scripts for the Infiniti system; but you also join a global network of practitioners and researchers. Being part of this group gives you many privileges including reduced costs for the *Learn From the Best* program of online lectures, supervision and mentoring sessions and how-to introductory and intermediate level courses. When you use the Infiniti software with a BFE suite you are not only investing in software and documentation you are buying extra time to treat your clients and enhance your practice. What is more, you will know that your purchase is contributing to the advancement of research and education in this exciting field.

---

## Ordering, Payment and Terms of Use

To purchase this software suite, simply visit the suites page of the BFE website and order online ([www.bfe.org](http://www.bfe.org)), or download the Software Suites order form from and complete and return as instructed. The Limited Edition Software Suite is priced at US\$150.

Limited Edition Software Suites are sold at **HALF** of the commercial retail value with the understanding that the software and documents provided on the Limited Edition may contain errors. Customers are warned that the software and documents are provided in exchange for suggestions on what needs to be changed, clarified, or otherwise improved for the future commercial editions. Purchasers **MUST** understand and give permission for their name to be added to a unique group that will receive updates to the Limited Edition suite at **NO CHARGE** until a commercial edition is published by the Biofeedback Foundation of Europe. The Limited Edition suite may also contain warnings and recommendations from leading clinicians for the off-label use of biofeedback devices.

**Purchasers agree not to copy or distribute the software without the written permission of the Biofeedback Foundation of Europe.**

## ONLINE COURSES & ONSITE DYSPHAGIA WORKSHOPS presented by Dr. Catriona Steele

Dr. Steele is available to teach onsite at a specific location upon request. The 1-day or 2-day workshops cover similar materials to the four lectures that make up our Introductory Level online presentation.

*For more information on scheduling a workshop, please contact Dr. Steele's Dysphagia Team at [greendysphagia@gmail.com](mailto:greendysphagia@gmail.com).*



P.O. Box 555 3800 AN , Amersfoort The Netherlands  
BFE-IREP  
Carol Meyers, Education Manager [education@bfe.org](mailto:education@bfe.org)  
Fax: +1 514 489 8251 Tel: +1 518 632-1018