BOOK REVIEW


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This second edition of The Neurofeedback Book is even more comprehensive, encyclopedic, accessible, and practical than the first edition. This new edition is not a simple update. Building on more than 50 years of clinical experience and research, the Thompsons, with the added expertise of their consultants James Thompson, David Hagedorn, Andrea Reid-Chung, and Tammy Binder, have provided a comprehensive and systematically presented guide to help anyone—beginner or advanced practitioner—to “understand the basis of neurofeedback and the fundamentals of how to do electroencephalographic (EEG) biofeedback” (Thompson & Thompson, 2015, p. v).

From cover to cover, this work offers an incomparable resource, presenting information that is visually appealing and cogent. Meticulous care has been given to the informative diagrams and tables and the easily searchable and readable layout of the material—from the table of contents to the final sections of the extensive multiple choice questions, the references section, and the highly usable index.

Each of the seven major parts and their respective 33 sections are comprehensive in themselves, yet they build sequentially on the important foundations of the previous parts. Thus, each section can be studied individually (and reviewed often), yet will be better understood and integrated when studied and referenced as part of the whole.

The seven parts are as follows:

- Part One: What Neurofeedback Is and the Science Behind It
- Part Two: Functional Neuroanatomy Organized with Reference to Networks, Lobes of the Brain, 10–20 Sites, and Brodmann Areas
- Part Three: Introduction to Assessment and Intervention
- Part Four: Assessment and Intervention: Advanced Procedures
- Part Five: Other Treatment Modalities that can be Combined with Neurofeedback and Biofeedback
- Part Six: Assessment and Intervention with Specific Disorders and Syndromes
- Part Seven: Efficacy, Statistics, Research Design, and Multiple Choice Questions

Given my level of interest and excitement in this second edition of The Neurofeedback Book: An Introduction to Basic Concepts in Applied Psychophysiology, I would not miss reading one page. As already mentioned, the references are comprehensive and encyclopedic, and the index is eminently useable at a glance.

Prior to Part One, the Preface, Acknowledgments, Word from the Authors, Overview of the Book, and the Introduction (to the first edition, by Joel Lubar) were truly enjoyable and highly educational reading, surpassing any traditional expectations of such textual preliminaries. They should not be neglected by anyone in the reading, and rereading, of this text.
These introductory components provide updated evidence-based information, and also integrate some of the ever-expanding wealth of knowledge, vast clinical expertise, and teaching expertise that the Thompsons continue to share with our ever-growing field of neuromodulation and neurotherapy. Even before the major sections of the book, they are able to cohesively tie together the crucially important historical issues of the past, vastly broad present experiences, and the emerging future of our field, yet always appropriately reminding us that “neurofeedback is never a stand-alone procedure.”

In performing this critical review, no negative issues have arisen, and this work should be recognized as the absolute, highest quality work available on neurofeedback.

**Part One: What Neurofeedback Is and the Science Behind It**

Section I provides the basics of biofeedback, neurofeedback, learning theory, and applications in clear, succinct language, which insults neither a purported expert in the field nor a novice reading for the first time.

Sections II–IV build a step-by-step foundation of the field of electroencephalography, including elements and technical aspects of EEG, which are essential to the proper performance of clinical practice and research on neurotherapy or neuromodulation. By neglecting this foundation, neurofeedback practitioners risk inaccurate analysis and ineffective clinical applications.

Section V takes the fundamentals of neuroanatomy and brings it to cohesive relevance by integrating the connectional and neurochemical dynamics, all in a superb and simple language interspersed with remarkably appealing diagrams, making it “living” neuroanatomy. An added benefit is the section’s discussion of clinical application to several neuropsychiatric disorders, which makes this section even more relevant, stressing the essential importance of a practical understanding of neuroanatomy for clinical practice.

**Part Two: Functional Neuroanatomy Organized with Reference to Networks, Lobes of the Brain, 10–20 Sites, and Brodmann Areas**

This wonderful addition to the second edition incorporates the previously separate functional neuroanatomy text by the Thompsons and their consultants, and provides a broad functional understanding and application of neuroanatomy. The three sections (Sections VI–VIII) guide us clearly through traditional neuroanatomical divisions and Brodmann areas, providing continual integration to neural networks. Once again, this material is presented with a number of remarkably illustrative and clear diagrams. Thus, with functional correlations to standard EEG electrode nomenclature locations, this section closes with an Appendix with comprehensive and concise tables, which will be used by clinicians and researchers as daily reference reminders of the neuroanatomic, functional, and dynamic foundations of working with patients and clients.

**Part Three: Introduction to Assessment and Intervention**

Although Part Three can be freestanding and will be referenced frequently in daily practice, the foundations of Part One and Part Two provide the crucial understanding without which assessment and intervention will be meaningless. Each of the seven sections in Part Three (Sections IX–XV) outlines the most basic information, clearly presented, with enough repetition to enhance learning without being redundant. Providing the basic technical “how do we get this information,” we are guided through the central, autonomic, and peripheral nervous systems, and learn how accurate assessment leads to accurate interventions. A superb presentation of combined neurofeedback plus biofeedback interventions is followed by a concise yet comprehensive summary of alpha-theta training, concluding Part Three with a thorough and clear discussion of metacognitive strategies that allow for the broader application and integration of neuromodulation in clinical settings.

**Part Four: Assessment and Intervention: Advanced Procedures**

Those wishing to build on the foundational assessment and intervention procedures taught in Part Three will find in these two brief sections clearly presented yet complex materials for the understanding and application of evoked potentials and event-related potentials (Section XVI), and LORETA (low resolution electromagnetic tomographic analysis; Section XVII). LORETA increasingly provides practitioners with multidimensional analysis to enhance understanding of neural processes underlying clinical disorders. LORETA facilitates neurotherapeutic training and enables healing of disorders of the nervous system.

**Part Five: Other Treatment Modalities That Can Be Combined with Neurofeedback and Biofeedback**

In Part Five, we are further taught of the increasing array of collaborative modalities which may, when used with neurofeedback and biofeedback, provide more rapid, more
widespread, and more specific responses as clinicians and researchers seek to move patients/clients toward more and more states of brain health. This part thoroughly, and yet again concisely, describes the modalities of heart rate variability training (HRV: Section XVIII), transcranial direct current stimulation (tDCS: Section XIX), cranial electrical stimulation (CES: Section XX), passive infrared hemoecephalography and near infrared spectrophotometry hemoencephalography (pIR HEG and NIRS HEG: Section XXI), and slow cortical potential neurofeedback (SCP: Section XXII). Part Five provides eloquent and practical detail with ample diagrams and tables that make reading and studying these Sections a rewarding, nonlaborious task!

**Part Six: Assessment and Intervention with Specific Disorders and Syndromes**

This part has been updated with newer techniques for assessment and intervention for a variety of neuropsychiatric disorders and syndromes. In it, the authors expertly intertwine the essential and unique history and findings that each patient/clients offers, demonstrating how the information in the previous five parts has immense clinical utility. While incorporating relatively newer modalities such as 19-channel qualitative electroencephalographic (QEEG) neurofeedback, evoked potentials/event related potentials, and other advanced techniques, the Thompsons again stress the time-proven, evidence-based record that: “very considerable success has been achieved over many years of practice using single-channel QEEG assessment and interventions that combine NFB with BFB and meta-cognitive strategies” (Thompson & Thompson, 2015, p. 619).

The clinical disorders and syndromes covered are accurately described and soundly detailed as to their current etiologic understandings, neuroanatomical and network roots, and applied psychophysiological methods suitable for assessment and intervention.

The seven sections in Part Six are: Concussion and Mild Traumatic Brain Injury (Section XXIII), Affect Networks/Depression (Section XXIV), Asperger’s and Autism Spectrum Disorders (Section XXV), Attention Deficits (Section XXVI), Seizures (Section XXVII), Movement Disorders and Fibromyalgia (Section XXVIII), Post-Traumatic Stress Disorder (Section XXIX), and concludes with a brief discussion of Optimal Performance Training (Section XXX).

**Part Seven: Efficacy, Statistics, Research Design, and Multiple Choice Questions**

This final—but nonoptional—part gives us a concise and practical discussion of the importance of implementing the principles of validity and reliability in our field (Efficacy Criteria Used in the Field of NFB: Section XXXI). It also makes essential components of statistics and research design understandable to everyone (Brief Overview of Statistics and Research Design: Section XXXI).

Finally, an absolutely valuable section of this edition of *The Neurofeedback Book* is the final 65 pages of comprehensive questions covering the entire scope of the textbook and the field of Applied Psychophysiology and Neurotherapy. Documented and referenced answers make it an enjoyable learning exercise, not just a list of rote questions, that helps all of us assess how well we are assimilating, integrating, and applying the wealth of knowledge we are privileged to acquire as we seek to help others every day.

This text is an absolute must for all clinician’s and clinical researcher’s libraries, but will not be a text that remains on the shelf. *The Neurofeedback Book: An Introduction to Basic Concepts in Applied Psychophysiology* (second edition) is a practical and usable comprehensive resource, and I have already been impressed, and thankful, with the ease of using this text daily in our busy, integrative practice.

Thank you Michael and Lynda Thompson, and your consultants and collaborators, for making this world-class textbook available again in a wonderfully revised and thoroughly updated second edition!