



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

### A review of “Results Software. Matthew Fleischman, PhD.”

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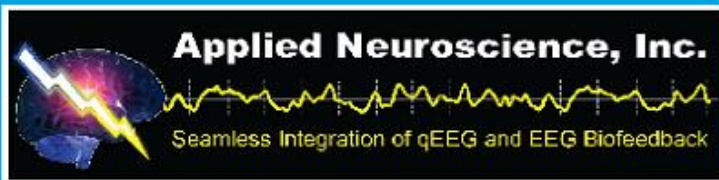
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## ***BOOK AND SOFTWARE REVIEWS***

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**RESULTS SOFTWARE.** Matthew Fleischman, PhD. <http://www.neurotherapyresults.com>

Among practicing neurofeedback providers, one problem that seems to impede the furtherance of our field is the nonconformity of data collection means. There are many different ways to collect data, and having these different ways can make it hard, if not impossible, to share data easily among practicing providers in order to help progress the field in practice-based research. In addition to this, it can even be difficult, or just time-consuming, to analyze our own data to see if our own specific treatment choices are really working.

Dr. Matthew Fleischman became aware of these problems and figured he would try to create a program to help solve both. This review is designed to provide an overview of the functionality of his program called Results. Results is being developed to help not only the practicing neurofeedback provider but especially those who are wishing to publish their results or show evidence-based results. In a blog on his Web site, Dr. Fleischman describes Results as “a way to take this Progress Tracker data, combine it with some pre- post-measures and easily analyze and summarize my results so I could prove with practice-based evidence what I believed to be true: neurofeedback works.” Due to this foundation, the program is made to be used by users of any computer, practice, and

research experience level. The layout is simple and has a well-thought-out design that should not take long to learn. If the user does become confused, the online and PDF manual is a simple step-by-step guide for each function. As the program is still being improved upon as feedback is received, there are frequent updates.

### ***CAPABILITIES***

#### ***Client Setup and Notes***

All information is on the main screen, so creating a client and selecting a client are available when you start the program. When creating a client file, the order to follow is easily apparent; again, all options are on the main screen. The way session data are stored is through Treatment Records. These identify how many sessions there will be, up to 100, and what type of neurofeedback will be conducted for the record layout. The Treatment Record can also be modified while in use, and additional ones created at any time with each one individualized. The reason behind this idea is for there to be clearly definable changes in treatment protocols, whether through symptom changes, system changes, or other. The program is already preset with many systems, diagnoses, and symptoms for analysis. Qualitative notes are also part of the program though they are a separate blank Microsoft Word document that is assigned to a specific client.

### ***Outcome Options***

The program is made with research in mind, and one of the first entries is outcome measure results, which can be flagged for time of administering so analyses can be conducted within and between clients for pre- and postmeasures.

The built-in set of Analysis Variables is divided into Primary Diagnosis, Medications, and Protocols. The Primary Diagnosis and Medications are meant for basic broad client information. The Protocol options are most useful for research, allowing you to assign certain clients to specific treatment groups. Results also allows between-subject analysis of any one of the three Analysis Variables group variables.

In the Treatment Record is the option of five Presenting Concerns, which includes a list of more than 200 specific symptoms, which are editable. These Concerns are associated with each session in that specific Treatment Record. The changes in Concerns can also be easily seen on the treatment screen without a need for calculations by changing the scores (0–4, with .5 increments) to data markers. This is useful for getting an instant and easy glimpse if what you are doing is beneficial to the client.

### ***Reports/Research***

The reporting feature, for adding statistics to your results, is preset with how it makes the analyses. If you want more in-depth statistics, then it will not replace SPSS or any other stats-based program. Taking that into consideration, the reports can be exported into Microsoft Word or Excel and should be able to be imported into another stats program.

When making a report on multiple clients, the Results Reports tab on the main screen will give you the reporting setup. The report options provided are very flexible, though the screen is unchangeable. It includes the ability to select individual or all clients, including any included outcome measures (with specific periods), responders, genders (male,

female only), ages, and splitting the clients up by their treatment groups, medications, or primary diagnosis. All of these options make for a versatile option grid for producing reports with the specific parts and clients you want. The output includes a list of the clients, the baseline and end score for each, the mean, standard deviation, change, percent improvement and the total sample size. It also includes a description paragraph that explains what the report covers.

At this time different Treatment Records cannot be compared, such that TR 1 and TR 2 are not analyzed together within or between clients. It also does not allow the user to assign a primary diagnosis to specific Treatment Records or allow comparison between diagnoses if symptoms are the same.

Reporting information on a single client can be brought up quickly in the client's Treatment Record. It provides the same information as before but also includes an option for a session by session change graph based on presenting concerns. This method works only for the Treatment Record open; it does not analyze any others.

For both of these methods, if you wish for a quick and easy way to see whether your treatments are beneficial, then you can bring them up in seconds. If you wish for any advanced research or to go beyond the program's limits in any way, then an export option is always available.

### ***Database***

From a networking standpoint, as long as all computers running it are on the same server the client database can be stored on a shared network drive and each Results program can be linked to it. The database can also be backed up and moved if need be, though it cannot be merged with another database at this time. In case you are sending data to be analyzed independently, a backup can be made that deletes client names and leaves only client numbers, a useful time-saving feature. As already stated, at this time databases cannot be merged, so if you have multiple computers that are not

networked and switch between them then the database will need to be moved each time. If there are multiple clinicians, each clinician can have their own database file, though empty files cannot be created unless they are created from a Results program empty of clients. Fortunately, making these backups is easy as the options are buttons under Database Utilities on the main screen. As well, if more than one site wants to combine treatment information for research, then they would need to export all the data into Microsoft Excel and import it into another stats program.

### **SYSTEM REQUIREMENTS**

The Results program uses an included Microsoft runtime to run most of its functions; however, those who wish to use this to make reports for research purposes, or write notes, will need to install Microsoft Excel/Word (2000, 2003, XP, 2007). It has been tested on Windows XP, Vista, and Win7 at minimum resolution 1024 × 768. In my own tests, the memory requirements are mild but may cause a slowing down of either Results or neurofeedback software if running together. Results may be usable concurrently with neurofeedback software, though a separate computer would be best. It also does not utilize multicore processor threads for more efficient usage.

### **PURCHASING**

The Results program can be purchased from <http://www.neurotherapyresults.com> for \$199.00 and includes free upgrades and an in-program updater that checks automatically whenever you start the program. In addition, it can be installed upon additional computers, if needed, for free; it's a one-time payment. If you would like to test it out first, the program can be downloaded and run in trial mode, which allows you to add four clients and data, but you are able to test functionality with six "sample" clients.

### **SUMMARY**

In reviewing this software, I think it has a good present and future potential if simple record, progress tracking, and research are what you are looking for. As it is fairly new and still growing, actively being updated as feedback is given, I have seen it go through several positive changes, and I believe they will continue. The limitations mentioned here may cause problems for some people. This is probably most apparent with the inability to merge databases, or import data if exported from another Results program, if networking capabilities are not available. As this is a private practitioner's project, Dr. Fleischman has informed me that this limitation, and others mentioned, will be looked into once financing is secured for it. From this and Dr. Fleischman's desire for Results to be used widely by the neurofeedback community, I hope that as this product is sold, revenue is made, and feedback given, updates will continue and Results will grow and be a positive addition to any neurofeedback practitioner whether an individual, researcher, or institution.

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**HUMAN POTENTIAL: EXPLORING TECHNIQUES TO ENHANCE HUMAN PERFORMANCE.** David Vernon. *Routledge, New York, 2009, 267 pages, ISBN: 978-0-415-45769-9.*

David Vernon's book *Human Potential* is an excellent summary of human-performance-enhancing techniques. One of the most appealing features of the book is the successfully nonbiased critique of each method for its overall effectiveness. The book explores the ways in which people have tried to enhance their performance by both passive techniques, such as receiving a repeated message, and techniques that require a more

active presence, such as mental imagery and speed reading.

Tied to the notion of human performance is the concept of self-actualization, a notion made popular in psychology by Abraham Maslow and humanistic psychology, which states that individuals are constantly striving to achieve their full potential. Maslow believed that to accurately depict the human condition one must consider not only the depths of problems but the heights that each person is capable of attaining. The methods explored in the text are in many ways designed to achieve goals through motivation, learning, and the ability to produce inner calm while decreasing the effects of stress and other negative experiences.

Part 1 of the book introduces passive techniques for increasing human potential and performance. The introductory chapter is a glimpse into the origins of performance enhancement, including humanistic psychology and positive psychology and ending with explaining criteria used to critique the explored range of techniques.

The second chapter addresses hypnosis, defining it, discussing the procedure and theoretical perspectives, and concluding with a very thorough literature review addressing various areas where performance enhancing hypnosis has been used and its effectiveness. These areas include motor performance, sports, and academic performance.

Chapters 3 through 5 explore the techniques of sleep learning, subliminal training, and audio visual entrainment respectively. In all three categories a notable conclusion is that the existing research may be lacking in its ability to convince an audience of efficacy based on methodological problems. In addition, existing research in these areas like many others find both convincing and not-so-positive results, leaving the reader not much better off than before in terms of evaluating techniques.

Chapter 6 begins the section of active techniques that require the participant to undergo training in order to enhance performance. The topic of meditation is explored in this chapter. Meditation is described as a process whereby the practitioner brings his mental processes under

voluntary control. Although, as the author points out, there are several techniques to meditation, all share two goals: mindfulness and concentration. The review finds meditation can change actual brain structure, blood flow, and electrocortical activity, resulting in enhanced attentional, cognitive, and academic performance. This is thought to happen through increased attention to the task at hand as well as decreased attention to extraneous variables. Finally, in this chapter, concerns around meditation are introduced, such as the possibility that meditation can induce epileptic-like signs.

Chapters 7 and 8 address mnemonics and speed reading, respectively. Biofeedback and neurofeedback are given separate chapters. The take-home message from the neurofeedback section is that long-term changes should be studied as initial improvement in performance may not necessarily last. The author also concludes that neurofeedback training to enhance performance is "encouraging but inconclusive." Areas of possibility for neurofeedback and performance include cognitive areas such as attention, memory, and mental rotation. Artistic performance including dance, music, and singing are explored in this chapter, as is sport performance.

The section about active techniques concludes with a chapter on mental imagery that posits improvement in performance when using imagery, but combining mental imagery with other techniques leads to improved outcome.

The third and final section of the book is dedicated to peak performance and leaves some clear directions for future research as well as an introduction to the reader to begin to think about ethical and social implications of using performance enhancing techniques. It seems that overall the text leaves no stone unturned with regard to enhancing human performance.

This book does a wonderful job of explaining various performance enhancing techniques. It gives a well-balanced review and generally confirms the notion that stricter research methodology is required to draw any concrete conclusions about efficacy of any of the techniques. Upon conclusion of

this text, the reader should have a very good understanding of performance-enhancing techniques and the research surrounding each. This text is an excellent introduction that provides familiarity as well as critical evaluation of each of the tools explored.

The author has obviously done his homework.

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