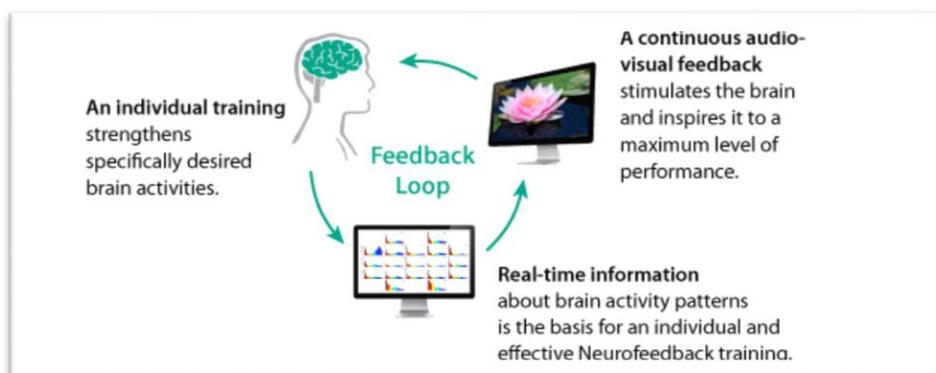


Information and Guidelines for Participating in Neurofeedback

FREQUENTLY ASKED QUESTIONS

What is Neurofeedback (NFB)?

Neurofeedback (NFB), also called EEG Biofeedback or Neurotherapy, is an advanced intervention that presents the participant with real-time feedback on brainwave activity, as measured by sensors on the scalp, typically in the form of a video display and sometimes sound. Most of our NFB methods train brainwaves to optimize neuro-electrical self-regulation. NFB works by training up or down certain brainwave frequencies. More efficient and effective brain waves patterns make life less problematic and more enjoyable. HEG Biofeedback works similarly, except that it uses an infrared sensor to monitor and train brain metabolism.



Over time participants should notice differences in how they think, feel, and behave. For example, individuals may feel more energy, more relaxed and calm. They may feel more rested, experience better sleep and improved concentration. Participants may also notice changes in appetite, mental performance and overall mood. When brain activity changes in the direction desired by the NFB protocol, a positive "reward" feedback is given to the individual.

Rewards/reinforcements can be as simple as a change in pitch of a tone, or as complex as a movie becoming brighter or darker. Most participants complete approximately 30-60 sessions in order to establish the changes NFB makes in the brain. Each session, participants are asked to complete a questionnaire that tracks these and other areas that may be affected by participating in NFB.

In addition, individual lifestyle changes will help the benefits of NFB take hold faster, or in the absence of following the advice given below, it may take longer to begin feeling the benefits of participating in NFB. If participants do not work on maintaining healthy lifestyles, the benefits of NFB will not be optimal, and in some cases, minimal benefits will occur. Individuals participating in NFB will receive maximum benefits if they understand the information, and follow the basic instructions that are shared on the pages that follow.

What is the success rate of NFB?

Generally, the success rate with NFB is over 90%. Everyone is different, and one's lifestyle and commitment to treatment are important. Some individuals are fast responders and others have more difficulty. A few individuals just do not seem to respond to NFB training, and we do not always know why. By following the guidelines, we require or suggest, you will insure having the best chance at benefiting from NFB.

We would ask that you attend at least 10 sessions in order to have an opportunity to appreciate progress toward your goals. It is reasonable to expect a 60% decrease, and usually more, in your most troubling problems after a full course of sessions.

What should I expect after the first few sessions?

Generally, participants do not experience major changes. You may not experience anything after the first session or two; however, you may experience feeling more calm, more focused, more productive, less foggy, and better sleep that night. Having a new kind of improvement occur in your functioning is different than noticing it, in other words, you may sleep better, but not be able to really tell a difference overall. As you progress in NFB, you will notice that the benefits are more noticeable and last for more than one or two days. After twenty or more sessions, you should begin to experience the benefits lasting up to one week.

What to expect from further sessions?

The most common report is feeling more focused, calmer all the time, and improved sleep. In general, symptoms become less intense, less frequent, and are of shorter duration. **In general, but not always, clients experience about 30% reduction in their most troubling symptoms by session 20, and about 50-60% reduction in these symptoms by about session 40.** Ideally, you will experience steady progress but some people experience change in increments. Improvements can come to any realm in your life where the brain plays a role.

Are there any side-effects to neurofeedback?

Studies show that NFB side effects are similar to the side effects of meditation. Adverse side-effects are rare, minor and short-term (see side effects below). The most likely response after a session is feeling fatigue, or the opposite, over-energized. Sometimes there can be a headache or some moodiness. This should dissipate within a few hours. On occasion, a very sensitive person will experience fatigue or sadness lasting into a second day, but this is not common. NFB side effects may include:

- Sleeping better
- Increased energy level
- Enhanced calmness
- Enhanced mood
- Improved concentration
- Improved focus and attention
- Memory improvement
- Reduced emotional reactivity
- Relaxation
- Increased awareness of dreams
- Nightmares*
- Moodiness*
- Irritability (short-term after a session)*
- Headaches*
- Anxiety*
- Insomnia*
- Agitation*
- Boundary Clarification (relationship changes, i.e., becoming more assertive)

* These side effects are rare and if experienced should be reported to us immediately.

Will other treatments and the medications I am currently taking affect my neurofeedback program? NFB tends to make other treatment methods work better. It also seems to make medications work better at first.

Psychoactive pharmaceuticals (those prescribed for ADD/ADHD, anxiety, depression, and insomnia) may slow the NFB process down slightly. **Taking 3 or more medications will likely slow NFB progress down.** As you progress and the underlying disorder improves, the same dosage may become too high, and side effects of the medication may increase.

So, it is important to keep your physician informed of your progress with the NFB program so adjustments can be made, if appropriate, to your medication regimen. If no medication adjustments are made, interference may occur with the goal of neurofeedback to reduce or eliminate the psychoactive medications you are prescribed. As you progress with your neurofeedback, its efficacy may be negatively impacted if adjustments are not initiated. Medications should never be changed or stopped without the direct consent of the prescribing physician.

Under what conditions is neurofeedback less effective in achieving optimal results?

There are five situations that neurofeedback is generally less effective:

- 1) Use of illicit street drugs, i.e., cocaine, marijuana, etc., interferes with NFB treatment.
- 2) Persons who experience ongoing stressors during the majority of their day, i.e., job related stress, stressful relationships (i.e., serious marital problems, being bullied at school), and avoiding addressing the stressors with counseling.
- 3) Persons who have certain serious physical health problems, (i.e., GI problems, untreated thyroid conditions, heavy metal toxicity, chemical imbalances such as excessive copper), or who have a diet high in sugar and carbohydrates.)
- 4) Persons who have experienced a recent traumatic event (i.e., victim of crime, victim of a natural disaster, etc.), but have not seen a mental health professional to address the trauma related problems, or who have had a recent head injury.
- 5) When patients taking multiple medications for mental health disorders, such as anxiety, depression, ADHD, insomnia, etc., and are not working with their health care prescriber to adjust their medications. This includes appropriately discontinuing medication, in response to their progress with their neurofeedback program.

How often do I need to come?

Participating in NFB is a commitment. Two sessions per week is recommended for EEG Neurofeedback and one session per week is recommended for HEG Neurofeedback. You should set up your recurring NFB sessions with us, to constitute an established appointment. We kindly ask that you give us 2-4 weeks' notice if you are going to miss a NFB appointment. NFB is cumulative and each session builds on the previous session. **Skipping sessions slows down the overall process.** Sessions usually last 45-50 minutes and are booked on the hour. We reserve the right to terminate patients who have missed scheduled sessions or who are not committed to participating in NFB.

How long does a neurofeedback training program last?

A normal course of NFB is often 30 to 60 sessions, and in some cases when patients practice optimum self-care and holistic health, NFB may be successful in less than 30 sessions. Some conditions are more severe and require in excess of 60 sessions. **Every 20 NFB sessions we will set up a time for you to be remapped (a repeat QEEG brain mapping), to monitor progress and update training protocols. Please note that this is an arbitrary number of sessions and not a particular stopping point. We train until the person has met their goals, then reduce sessions to once per week until goals are maintained, then to every other week, until goals are maintained, and then treatment is ended.**

What is the process for scheduling appointments?

Neurofeedback IS a Commitment. As a rule, Neurofeedback should occur twice per week at the minimum. Each of us has a Circadian Rhythm that changes throughout the day and the week. Having NFB sessions the same time on the same days each week is best whenever possible. **You can cancel an appointment if you encounter an important conflict, but we ask that you give us at least 24 hours' notice if you need to cancel. Even then, we cannot usually fit another client into that slot, as it has been saved for you, and other clients have their own slots, so we respectfully ask, for both your benefit and ours, that you make your appointments a priority.**

Neurofeedback sessions are generally 45-50 minutes long, which includes prep time, HRV, and training. Before coming to your NFB session each week, please keep the following in mind:

- 1) Make sure you have shampooed your hair the day before or the day of your session, and do not use any other hair products. Dirty hair and hair products affect impedance and can lower the quality of your session
- 2) If you eat a meal or a snack within a few hours of your session, try to eat protein and/or fat and avoid processed foods, especially those high in carbohydrates, i.e., crackers, breads, chips, and starches. Avoid sugars and caffeine. Proteins, fruits, vegetables and nuts are best.
- 3) **If you drink alcohol, you should not drink the same day you have a neurofeedback session.**

WORKING TOGETHER WITH REGULAR COMMUNICATION IS IMPORTANT TO SUPPORT POSITIVE OUTCOMES:

- Weekly Check-In: Each session you are expected to fill out a progress tracker on-line or at your session, prior to your appointment, on several behavioral, emotional and cognitive areas.
- Medication changes and updates: If, after starting neurofeedback, there is a change to any prescription you are currently taking for depression, anxiety, insomnia, ADD/ADHD, or any mental health related conditions, or there is an addition of a new medicine to your regimen for these conditions, advise your neurofeedback therapist right away. Please provide us with the updates to any of the following:
 - 1) Changes in medications
 - 2) Dosage changes
 - 3) Starting new medications
 - 4) Decreasing or stopping medications
 - 5) Changes in frequency of taking medications

All medications have effects on the brain and alter brainwave activity. That is the reason it is important to advise your neurofeedback specialist of medications you are taking and any changes to your medications, so they can check for changes in your EEG/brain waves. Withdrawal from medications should be supervised by your prescribing physician.

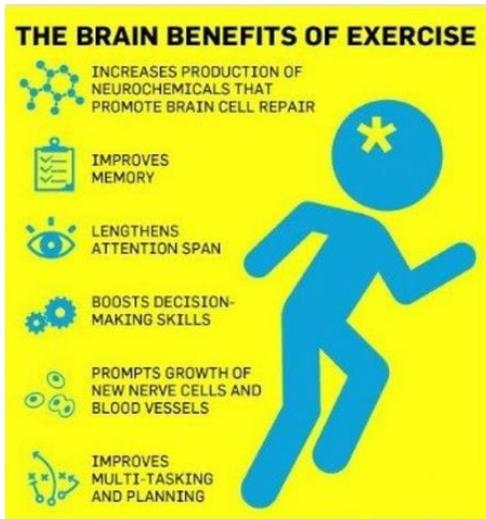
- Head Injury: If you experience a head injury (no matter how major or minor) during the time you are being treated with neurofeedback, please make sure that you tell your neurofeedback therapist about your head injury. If the head injury resulted in black/out, concussion, dizziness, headaches, nausea, vomiting, or similar symptoms, it is important to advise your therapist of this new injury immediately. Often neurofeedback will need to be stopped for a few months in order to allow the brain to heal itself naturally.
- Lifestyle changes and events: If you are involved in life events or situations that are causing you stress and anxiety, i.e., stressors at work, stressors at school, stressors at home, stressors in significant relationships; depression, i.e., loss of job, loss of loved one; and/or any problems related to the quality of your life; please advise us immediately.

HOW TO OPTIMIZE YOUR NEUROFEEDBACK PROGRAM:

Neurofeedback is an effective and leading edge treatment for a variety of disorders; however, to maximize the benefits of participating in Neurofeedback, we strongly encourage you to follow the guidelines below:

1 - Avoid or Use with Caution:

- Alcohol and recreational drugs
- Aspartame or other neurotoxins
- Aluminum (pans, foil, deodorant, etc.)
- Gluten for gluten-sensitive people
- Food additives – corn syrup, nuts (if sensitive), wheat, soy, etc.
- Processed and sugary foods
- Fad diets
- Stressful Environment



2 - Exercise:

We've all heard how beneficial exercise is, and in the world of neurofeedback, it's no different. Getting at least 30 minutes of aerobic exercise per day can help neurofeedback training be more effective and progress more quickly. In fact, in our experience, many of the people who have completed their neurofeedback goals the fastest have been exercise lovers!

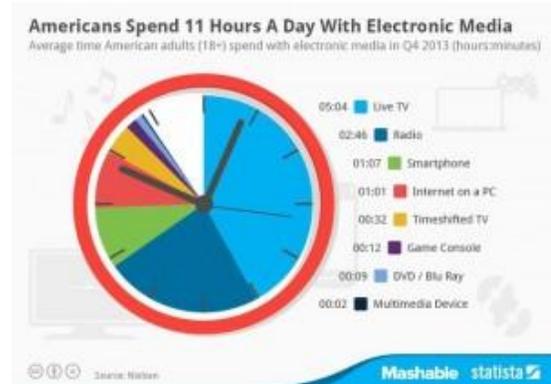
3 - Environment:

Stressful environments create, maintain, and/or increase/worsen anxiety. Try to avoid stressful situations at work and at home whenever possible. Work to find solutions to problems that minimize stress and anxiety. Often, children easily notice stress and tension in the home.

4 -Technology:

Excessive time on electronics is not advised. We live in an age of technology. Many of us are using it all day long. The average child between the ages of 7-18 spends an average of 10 hours per day using electronics; i.e., TV, radio, computers, electronic games, cell phones, MP3 players, etc. For children (especially under age 7) it is recommended that they not spend more than 2 hours per day in front of a screen, i.e., computer, TV, games, cell phones, etc. **For all others, please limit screen time as much as possible, with no more than 2 hours of leisure time in front of screens.** You may want to take a screen holiday for a weekend, and notice any differences in how you feel during this time.

We highly recommend turning off all electronic media at least 1 hour before bed. Dr. Daniel Siegel explains why this is important in a 2-minute YouTube video entitled, "This is what happens to your brain and body when you check your smart phone before bed." Check it out when you get the chance! Neurofeedback is an amazing tool, but it cannot compete with multiple hours a day of electronic media usage. If you would like more information about the impact of electronic media on brain health, Dr. Mari Swingle has written the book, "i-Minds" which analyzes research on this topic.



5 - Routine Lifestyle:

The majority of doctors and health professions will encourage you to try to live a routine lifestyle. What we mean by a routine lifestyle, is going to bed about the same time and getting up about the same time each day and trying to eat meals about the same time each day. This is good for both mind and body. It keeps your entire body in sync with your circadian rhythms.

It is also important to avoid situations that are known stressors, whenever possible. When faced with stressful situations, work towards resolution, and try not to ruminate or "get stuck" in negative and/or destructive and nonproductive thought patterns, emotions, and destructive behaviors. When negative thoughts and emotions come up, you should talk with a therapist or a trusted person. Typically, it is not helpful to keep feelings in or ignore them. Be mindful of maintaining a supportive environment at home, work, and/or school as well as a supportive peer group.

6 - Sleep:

Most Americans do not get enough sleep! **In general, children need between 8-10 hours of sleep per night and most adults need 7-9 hours of sleep per night.** College students, like other adults, also need 7-9 hours of sleep per night. Try to practice good sleep hygiene. Good sleep hygiene includes using the bedroom primarily as a place to

sleep. Maintain a regular hour for going to bed. Use only incandescent or full-spectrum lighting, as all other forms of indoor lighting negatively affect the brain's bio-regulatory capacities. This pertains to daytime indoor lighting as well.

How Much Sleep Do You Really Need?

Age	Sleep Needs
Newborns (0 – 2 months)	12 – 18 hours
Infants (3 – 11 months)	14 – 15 hours
Toddlers (1 – 3 years)	12 – 14 hours
Preschoolers (3 – 5 years)	11 – 13 hours
School-age children (5 – 10 years)	10 – 11 hours
Teens (10 – 17 years)	8.5 – 9.25 hours
Adults	7 – 9 hours

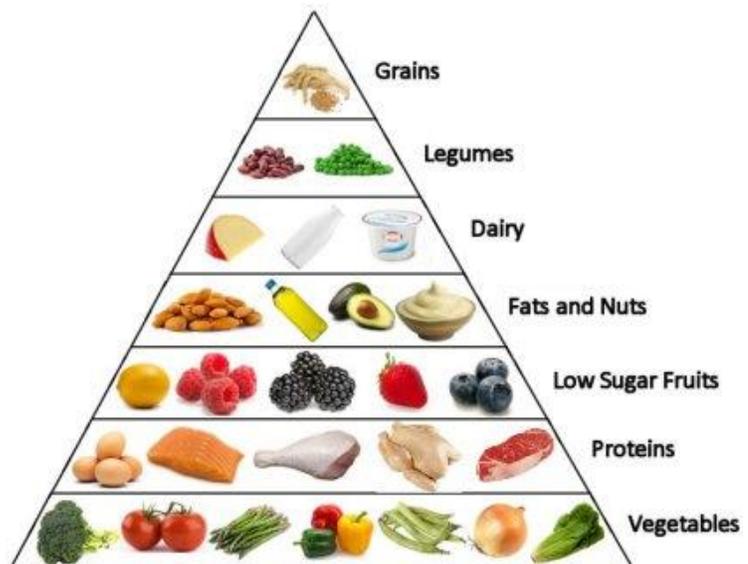
Three hours before retiring, dim all the lights in your environment or use low-blue light amber bulbs. Alternately, you can wear blue-blocking glasses. Use as few light sources as possible. Try to avoid watching TV when you are going to sleep. Do not use the computer, or any other electronic devices with a screen (i.e., iPads, cell phones, games, electronic books, etc.) at least 1 hour before going to bed. While fluorescent light bulbs and LED lights are much more energy-efficient than incandescent lights, they also tend to produce more blue light. That means the proliferation of electronic devices with screens, as well as energy-efficient lighting, is increasing exposure to blue wavelengths, especially after sundown.

If you must use a computer at night we encourage you to download the software f.lux <http://justgetflux.com/> onto your computer. It is safe and lowers the levels of blue light on your computer after the sun goes down. Some tablets and phones also have blue light filters that can be set with the sunrise and sunset.

Otherwise, read a book or listen to soothing music. You can read before going to bed, but try to turn off the light and put the book down when you feel tired before going to sleep. Practice deep breathing and body relaxation before you go to sleep. Keep the room dark whenever possible. The bedroom should be absolutely dark and devoid of any light over 0.5 watts so that your brain can correctly interpret sleep cues throughout the night.

8 - Diet:

A healthy diet makes NFB more effective. Try to minimize processed foods at home and fast foods while on the run. White sugar, artificial sweeteners, saturated fats, and simple carbohydrates in your diet should be avoided. These directly affect the brain, and create urges for these items in your diet. Refined carbohydrates should be eliminated from the diet of most individuals. For those who suffer from mood swings or depression (not to mention hyperactivity or hypoglycemia), overuse of sweeteners in general has been implicated as a contributor. Try to reduce or eliminate the use of stimulant beverages (coffee, coke and other caffeinated soft drinks), and reduce or eliminate the use of alcoholic beverages.



In our culture, a diet is often considered healthy even when it is packed with carbohydrates and other sugars. Having a cereal and juice for breakfast, a sandwich and chips for lunch, and pasta with a salad for dinner is quite average, but truly doesn't give the brain the fuel it needs to operate, let alone heal. We often see inflammation and/or brain metabolism issues in our brain maps, and we therefore recommend an anti-inflammatory manner of eating. Many top experts, including Daniel Amen, MD ("Change Your Brain, Change Your Life") recommend a high-protein, low-glycemic index diet for optimal brain health.

9 - Practice Diaphragmatic Breathing:

Using this breathing during the day and during your NFB sessions, will help enhance the benefits of neurofeedback.

How often should I practice this exercise? At first, practice this exercise 5-10 minutes about 2-4 times per day. Gradually increase the amount of time you spend doing this exercise, and perhaps help yourself practice the technique by placing a book on your abdomen and watching the book rise and fall.



You can try the following smartphone apps (or many others like these) to help you:

Breathe 2 Relax: free breathing coach. You can set the "in" and "out" breaths to about 5 seconds.

Stress Check Lite by Azumio: free heart rate variability meter. You use it by putting your finger over the camera on your phone and wait for about 2 minutes while practicing your breathing. It will give you a rating of how "stressed" you are (heart rate coherence). Use it before and after Breathe 2 Relax in order to measure your progress.

Thank you for taking the time to read this document. Although you may find it to be a challenge to take in all the information, we hope ultimately, the guidelines will prove valuable and supportive of reaching your wellness goals in neurofeedback. Feel free to refer back to it frequently, and to reach out with questions at any time.