

Serendipity Healing Arts
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Information and Guidelines for Participating in Neurofeedback

FAQs

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, and typically in the form of a video display, and sound. Most of our NFB methods train brain waves 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. Over time (and usually after 5-6 sessions), participants should begin to notice and feel 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 certain type of movement of a character in a video game.

Most participants complete a minimum of 25-30 sessions in order to establish the changes NFB makes in the brain. Each week, 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. We suggest 10 sessions because most people see improvements earlier, but as noted above, some are late responders. It is reasonable to expect a 50% decrease, and usually more, in your most troubling problems with 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. This will dissipate at first, but as you progress in NFB, you will notice that the benefits 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. Emotional calm comes first, and then mental focus tends to improve later. Ideally, you will experience steady progress. Improvements can come to any realm in your life where the brain plays a role.

Are there any side-effects to neurofeedback?

Adverse side-effects are rare, minor and short-term (see side effects below). The least 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:

Sleep differences – sleep generally improves

Enhanced calmness

Improved concentration

Memory improvement

Reduced ability to resist emotions

Nightmares

Irritability (short-term after a session)*

Anxiety*

Agitation*

Boundary Clarification (relationship changes, i.e., becoming more assertive)

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

Increased energy level

Enhanced Focus

Improved focus and attention

Reduced emotional reactivity

Increased awareness of dreams

Moodiness

Headaches*

Insomnia*

Relaxation

Will other treatments and the medications I am currently taken 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) tend to slow the NFB process down slightly. As you progress and the underlying disorder improves, the same dosage may become too high, and side effects 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.

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., serious GI problems, untreated thyroid conditions, heavy metal toxicity, chemical imbalances (i.e., excessive copper can lead to significant sleep disturbances).
- 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.
- 5) When patients taking multiple medications for mental health disorders, such as anxiety, depression, ADHD, insomnia, etc., 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. One session per week is required. There is an option for twice a week sessions that is preferable. However, we understand that people today have complex lives, and can only commit to once a week. You should make your NFB session appointments every week, 6-8 weeks out, as to constitute an established 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 are missing sessions and not committed to participating in NFB.

How long does a neurofeedback training program last?

A normal course of NFB is often 25 to 30 sessions, in some cases when patients practice optimum self-care and holistic health, NFB may be successful in less than 25 sessions. Some conditions are more severe and require in excess of 40-50 sessions.

As the neurofeedback patient approaches 20 NFB sessions, the option to set up a time to be remapped (a repeat QEEG brain mapping) will be offered. As discussed above, most patients will complete NFB treatment within 25-30 sessions.

What is the process for scheduling appointments?

Neurofeedback IS a Commitment. As a rule, Neurofeedback should occur once per week at the very minimum. Progress is best when your clinician can see you on the same day at the same time each week. Each of us has a *Circadian Rhythm* that changes throughout the day and the week. Having NFB sessions the same time on the same day is best whenever possible. **Please use the following guidelines when scheduling appointments for neurofeedback:**

1) Establish a regular appointment schedule.

In order to assure that you have a weekly appointment for neurofeedback, **we encourage all patients to have an established appointment on the same day(s) and at the same**

time(s) each week whenever possible. We realize that some people work flexible schedules and cannot always be at Integrative Therapies on the same day and time each week. Therefore, a couple of times slots are always kept open to accommodate various schedules. **If you have difficulty scheduling an appointment, please let your neurofeedback therapist know right away.**

2) Schedule your neurofeedback appointments 6-8 weeks in advance.

Each week you should add another appointment to your existing schedule to keep your set appointment time(s) ongoing. You can always cancel an appointment if you encounter a conflict. We just ask that you give us 24 hours notice if you need to cancel. It is difficult to fit patients in at the last minute, as the neurofeedback schedule often books up weeks in advance.

3) If you start as a one session a week patient, and you want to book a second neurofeedback session for the week, you must clear it with your neurofeedback clinician first.

4) PLEASE NOTE: The 3:00pm and 4:00pm time slots are usually reserved for children and adolescent patients to accommodate school schedules and prevent lost time during regular school hours. **Adults who wish to schedule a weekly 3:00pm or later time, must clear it with their neurofeedback therapist first, as those times are subject to change based upon caseload.**

How do I prepare for each Neurofeedback session?

Neurofeedback sessions are generally 50-60 minutes long, which includes prep time, training and debriefing.

Before coming to your NFB session each week, please keep the following in mind:

- 1) Make sure you have shampooed your hair the night before or the day of your session. However, 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 avoid processed foods, especially those high in saturated fats and/or carbohydrates, i.e., crackers, breads, chips, and starches. Try to avoid sugars and caffeine. Proteins, fruits, vegetables and nuts are best.
- 3) Drink a cup of plain water before your session.
- 4) 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:** We need to know how you are doing so NFB protocols can be adjusted if needed. Within a day after your first NFB session, you may receive an email asking you how you did after your first session. Even 'nothing to report' is useful information. **Each week you are expected to fill out a progress tracker on-line, 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 of these 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 your therapist 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 (Refer to addendum 1)

- Alcohol and recreational drugs
- Aspartame
- Neurotoxins
- Parabens and Phthalates
- Anti-perspirants with aluminum-based compounds
- Gluten for gluten-sensitive people
- Food additives – corn, corn syrup, nuts, wheat, soy, etc.
- Processed Foods
- Fad diets

- Supplements
- Stressful Environment

2 - Exercise:

It is important to exercise 3-5 days per week. It is recommended that children and adults get the equivalent of 45 minutes of cardiovascular workout each day. If you have a sedentary job, (i.e., desk job), get up and walk around whenever possible. It is recommended, that persons with sedentary lifestyles try to walk 5000 steps per day.

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 for youth with ADD and ADHD.

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 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.

5 - Electromagnetic Waves/Fields (Can EMFs really affect human health?):

Some people are sensitive to electromagnetic fields and it can affect their quality of sleep. In some cases, it can cause insomnia. Examples are electronics with remote controls, Wi-Fi computers, cellular phones etc. If you believe you are sensitive to these waves turn everything off (unplug them) in your house before you go to sleep.

Today, over a thousand research studies have linked EMFs to important biological effects. But there is still great controversy about the seriousness of the health effects, and the conclusiveness of the research data. In the beginning, many scientists assumed that EMFs could not affect human health because EMFs cannot ionize molecules like x-rays and nuclear radiation, and the exposures are usually too low to cause significant heating of body tissue. However, similar to the way that EMFs can cause interference problems for sensitive electronics and computer system, the research is beginning to suggest that low-level EMFs can indeed influence and interfere with sensitive bio-electromagnetic processes within our cells, brains and bodies. For example, research suggests that our pineal gland can somehow sense the daily changes of the earth's natural magnetic field, and use this information to help regulate our wake/sleep cycle. Studies indicate that artificial magnetic fields can suppress the secretion of melatonin from the pineal gland at night, the main hormone that initiates our sleep cycle.

6 - 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.

7 - 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 adults also need 7-8 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 lighting, as all other forms of indoor lighting negatively affect the brain's bio-regulatory capacities. This pertains to daytime indoor lighting as well.

Three hours before retiring dim all the lights in your environment. 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.). 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.

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 to relax before you go to sleep. Keep the room dark whenever possible. The bedroom should be absolutely dark and devoid of any light whatsoever 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, simple carbohydrates, and salt 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. Whenever possible, eliminate all food dyes and food preservatives from the

diet. It is recommended to eliminate all hydrogenated fats/oils, including "palm oil", which is a misleading term for a hydrogenation process.

Individuals who suffer from sleep deprivation may do better by eating pasta or rice (carbs increase serotonin production) and poultry (for its tryptophan) in the evenings. Those same individuals benefit from eating more proteins during the day.

9 - Practice Diaphragmatic Breathing (see Appendix 2):

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 3-4 times per day. Gradually increase the amount of time you spend doing this exercise, and perhaps even increase the effort of the exercise by placing a book on your abdomen.

Thank you for taking the time to read this document and appendices. 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.

My signature below indicates that I have read and understand “Information and Guidelines for Participating in Neurofeedback”, and I agree to ask questions about anything I do not understand.

Printed Name _____

Signature _____ **Date** _____

APPENDIX 1 – Things to Avoid or Use with Caution

Drugs and Alcohol:

If you are using illicit, recreational, or street drugs, please do not ask to participate in NFB. You will be wasting your time and money having neurofeedback. If you drink alcohol you should not drink the same day you have a neurofeedback session. If you are participating in NFB, we encourage you to not drink at all, but if you do, no more than 1 drink per day on the days you do not have a NFB session.

Aspartame:

Aspartame is the most popular artificial sweetener in the United States, but some experts think a more apt description would be the most dangerous food additive on the U.S. market. New research has revealed that long-term consumption of aspartame leads to oxidative stress, vascular congestion and an imbalance in the antioxidant/pro-oxidant status in the brain. The amino acids in aspartame literally attack your cells, even crossing the blood-brain barrier to attack your brain cells, creating a toxic cellular overstimulation, called excitotoxicity. You might not realize you're having a reaction to aspartame; most people don't make the connection between their headaches, fatigue, anxiety attacks and other symptoms until they conduct an elimination diet. You can help break free from aspartame addiction by addressing the emotional component of cravings; Stevia, a natural herb, is a safer alternative to add sweetness to your food or beverage.

Neurotoxins

There are a variety of toxins, heavy metals, and neurotoxins in many commercially made products including make-up, skin and hair care products, supplements, and processed foods. Please inquire if you would like further information about health care in these areas.

Parabens and Phthalates

Many common and everyday items used by us such as shampoos, skin care products, cosmetics and make-up contain parabens and phthalates, which recent studies indicate may be linked to cancer development and other health problems. Try to avoid any health care products that contain parabens and phthalates.

Parabens are chemical preservatives that have been identified as estrogenic and disruptive of normal hormone function. Estrogenic chemicals mimic the function of the naturally occurring hormone estrogen, and exposure to external estrogens has been shown to increase the risk of breast cancer.

Phthalates are known to cause a broad range of birth defects and lifelong reproductive problems in laboratory animals exposed to these chemicals during pregnancy and after birth. Phthalates are also known to be hormone-mimicking chemicals, many of which disrupt normal hormonal processes, raising concern about their implications for increased breast cancer risk.

Take a look at your favorite shampoo, facial cleanser or body lotion. If you see any of the ingredients below, you are using a product with toxic and harmful chemicals¹:

¹ <http://playanorte.hubpages.com/hub/Top-5-Green--Organic-Beauty-Products>

- Methylparaben
- Propylparaben
- Benzyl-parahydroxybenzoic acid
- Ethyl-parahydroxybenzoic acid
- Butyl-parahydroxybenzoic acid
- Parahydroxybenzoate
- Ethylparaben
- Butylparaben
- Methyl-parahydroxybenzoic acid
- Propyl-parahydroxybenzoic acid
- Parahydroxybenzoic acid

See more at:

<http://bcaction.org/our-take-on-breast-cancer/environment/safe-cosmetics/#sthash.5n6gjTq1.dpuf>

For a more comprehensive list see:

http://www.coconuttreasures.com/?page_id=62

<http://www.bcaction.org/our-take-on-breast-cancer/environment/safe-cosmetics/paraben-free-cosmetics/>

Some research has focused on parabens, which are preservatives used in some deodorants and antiperspirants that have been shown to mimic the activity of estrogen in the body's cells. Although parabens are used in many cosmetic, food, and pharmaceutical products, according to the FDA, most major brands of deodorants and antiperspirants in the United States do not currently contain parabens. Consumers can look at the ingredient label to determine if a deodorant or antiperspirant contains parabens. Parabens are usually easy to identify by name, such as methylparaben, propylparaben, butylparaben, or benzylparaben. The National Library of Medicine's Household Products Database also has information about the ingredients used in most major brands of deodorants and antiperspirants.

What do scientists know about the ingredients in antiperspirants and deodorants?

Aluminum-based compounds are used as the active ingredient in antiperspirants. These compounds form a temporary plug within the sweat duct that stops the flow of sweat to the skin's surface. Some research suggests that aluminum-based compounds, which are applied frequently and left on the skin near the breast, may be absorbed by the skin and cause estrogen-like (hormonal) effects. Because estrogen has the ability to promote the growth of breast cancer cells, some scientists have suggested that the aluminum-based compounds in antiperspirants may contribute to the development of breast cancer.

Foods that may cause health problems: Gluten is well established as a food that can be linked to Celiac Disease, Fibromyalgia, and Rheumatoid Arthritis among other health problems. Additionally, there is growing information about foods that are genetically modified organisms (GMOs) and their relationship to health problems and GI disorders. Other common foods and additives that may be linked to health problems and GI distress include corn, corn syrup, soy, cane sugar, sugar, cow's milk, nuts, and wheat products. Fresh fruits and vegetables (preferably organic) are best for us. Processed foods with additives and other chemicals can affect our health in a number of negative ways.

Diets:

There is no science to support most “fad” diets. The diet with the most research that is supported by the majority of health professionals is the Mediterranean diet. It is a diet that supports heart and brain health while reducing the risk of cancer, and a variety of inflammatory diseases. A well balanced diet of fruits, nuts, vegetables, whole grains, and fish and lean meat proteins are important. Try to avoid eating after 8:00 pm at night.

According to Daniel Amen, M.D., an author and leading authority on the human brain, the top 12 brain foods include:

- Avocado
- Blueberries
- Broccoli
- Green tea
- Oatmeal
- Oranges
- Red Peppers
- Salmon
- Spinach
- Tuna
- Turkey
- Walnuts

Mary Franz of Harvard recommends the following additional foods and spices:

- Parsley
- Celery
- Sage
- Strawberries
- Oregano
- Berries
- Grapes
- Dark Chocolate (70% + cocoa)
- Citrus
- Peppers
- Onions
- Thyme

3) Supplements: Most people take supplements that they do not need or that do not do them much good. Many supplements are not regulated by the FDA and there is no guarantee as to quality or dosage. Before taking supplements check with your doctor or consult with a registered dietician/nutritionist. Good quality and proper dosage are important if you are going to use them (i.e., not all fish oils/omega threes are the same). When needed, we encourage patients to take a multi-vitamin/mineral supplement, Omega 3 Fish oils, flax seed oils, or hempseed oil, CQ-10, probiotics, and a good digestive enzyme. Patients should always check with their Physician or a qualified nutritionist or dietician first before taking any supplements.

4) Alcohol and Drugs: On the days you have NFB you should avoid any alcohol and the rest of the time we encourage you to avoid alcohol in general; but if you drink any, just once in a while (not every night); and no more than one beer or a glass of wine per day and NOT before you go to bed. Avoid hard liquor. For obvious reasons, do not take any illegal substances. Alcohol, marijuana and other recreational drugs effect sleep and your brain wave activity. They too, will counter the benefits of neurofeedback.

Appendix 2

Learning to breathe ~ The First Step

*Diaphragmatic Breathing*²

Diaphragmatic breathing is the healthiest way of breathing. Utilizing this breathing style is one of the first steps to help normalize your breathing to manage anxiety or panic symptoms. Diaphragmatic breathing is also the most natural way of breathing. Observe how a very young baby breathes - they will use their diaphragm/belly with each breath. Years of poor posture, anxious thinking, tension and pressure will usually result in breathing patterns which are less-than-ideal and which will commonly involve:

1. Rapid, upper chest breathing... leading to
2. Over breathing... leading to
3. Depletion of carbon dioxide stores

Relearning to use your diaphragm in breathing and to reduce your rate of breathing is an important first step in managing the symptoms of anxiety, anger, panic, etc. The diaphragm is the most efficient muscle of breathing. It is a large, dome-shaped muscle located at the base of the lungs. Your abdominal muscles help move the diaphragm and give you more power to empty your lungs. But chronic obstructive pulmonary disease (COPD) may prevent the diaphragm from working effectively.

When you have pulmonary disease, air often becomes trapped in the lungs, pushing down on the diaphragm. The neck and chest muscles must then assume an increased share of the work of breathing. This can leave the diaphragm weakened and flattened, causing it to work less efficiently.

Diaphragmatic breathing is intended to help you use the diaphragm correctly while breathing to:

- Strengthen the diaphragm
- Decrease the work of breathing by slowing your breathing rate
- Decrease oxygen demand
- Use less effort and energy to breathe

Diaphragmatic breathing technique



1. Lie on your back on a flat surface or in bed, with your knees bent and your head supported. You can use a pillow under your knees to support your legs. Place one hand on your upper chest and the other just below your rib cage. This will allow you to feel your diaphragm move as you breathe.



2. Breathe in slowly through your nose so that your stomach moves out against your hand. The hand on your chest should remain as still as possible.

² The Cleveland Clinic Foundation.

3. Tighten your stomach muscles, letting them fall inward as you exhale through your nose while keeping your tongue to the roof of your mouth. The hand on your upper chest must remain as still as possible.



When you first learn the diaphragmatic breathing technique, it may be easier for you to follow the instructions lying down, as shown on the first page. As you gain more practice, you can try the diaphragmatic breathing technique while sitting in a chair, as shown below.

To perform this exercise while sitting in a chair:

1. Sit comfortably, with your knees bent and your shoulders, head and neck relaxed.
2. Place one hand on your upper chest and the other just below your rib cage. This will allow you to feel your diaphragm move as you breathe.
3. Tighten your stomach muscles, letting them fall inward as you exhale through your nose while keeping your tongue to the roof of your mouth.. The hand on your upper chest must remain as still as possible.



Note: You may notice an increased effort will be needed to use the diaphragm correctly. At first, you'll probably get tired while doing this exercise. But keep at it, because with continued practice, diaphragmatic breathing will become easy and automatic.