



# MindSpa<sup>®</sup>

Personal Development System

Self Improvement · Performance · Learning  
Relaxation · Rejuvenation

## Instruction and Use Guide

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## **Important Notice: Special considerations before beginning use**

The use of MindSpa is safe for most people as no serious side effects are known. However, there are few particular cases where MindSpa should only be used with the prior approval and monitoring of a medical or health care professional.

- Persons suffering from any sort of serious medical condition, including epilepsy, brain injury, mental impairments, visual photosensitivity. Those with serious physical conditions including those using a pacemaker or suffering cardiac arrhythmia or other heart disorders must consult with a medical professional before beginning use.
- Use with children or minors only with prior parental consent and monitoring.
- Do not use while on medication or while under the influence of drugs or alcohol.
- Do not use while operating machinery, vehicles or other mechanical devices.
- Discontinue use if experiencing any sort of adverse reactions such as dizziness, migraine, or severe anxiety. Please consult with a medical professional, if these symptoms occur.

*A/V Stim, LLC, NeuroTech, Inc, and Ruth Olmstead make no implicit or overt claims for cure or treatment of any medical or psychological disorders. No expressed or implied medical claims are made for A/V Stim products. These products should not be used for the relief of any medical or psychological condition.*

## Introduction

The human brain contains billions of brain cells called neurons. Neurons use electrochemical activity to individually communicate. Brainwaves are the composite of the individual neuron electrical activity of the brain, which result in thoughts, actions and behavior.

Brainwave frequencies are measured on two scales: cycles per second, also referred to as Hertz (Hz), and amplitude, which is the intensity. For example, ocean waves serve as a familiar model demonstrating cycles (wave frequency=cycles) and amplitude (wave height=intensity).

Early in the 20<sup>th</sup> century scientists developed instruments sensitive enough to measure minute patterns of electrical activity in the brain; brainwaves. Soon after discovery of brainwaves, early experiments found that these patterns could be altered by strobes of light blinking in the brainwave frequency range. These strobes created what is known as *frequency following response*, also referred to as *brainwave entrainment*. In other words, they learned that by introducing visual stimulus brainwave activity could be modified.

Light and sound have a very powerful influence on brainwave activity. Think of how relaxing it is to stare into a nice, flickering candle or fire. The mind naturally finds certain patterns of flickering light very soothing. The auditory system responds very much in a similar manner. Think of how calming certain musical compositions can be. This is true in nature as well such as the sound of a gurgling brook, or waves lapping at the shore. These are common examples of how brainwaves are influenced by outside visual and auditory sources.

Over the years, working with psychologists, we have learned how to fine-tune these frequencies to provide long-term benefit. MindSpa generates specific patterns of light and sound to help naturally induce desirable brainwave activity known as the *target state*.

MindSpa includes led glasses (light emitting diodes) and headphones. MindSpa is generally used with eyes closed sitting or lying in a comfortable position for 10 to 40 minutes.

The eyelids are quite thin so the flicking light provided by the led glasses can easily be seen through closed eyelids. The light then reaches the brain in the form of electrical impulses by way of the optic nerve. These pulses of light, along with sound, create a subtle matching effect – brainwave entrainment.

MindSpa is a passive system meaning that no conscious effort on your part is required. Just sit back, take a few slow, deep breaths and relax. The only requirement is to use MindSpa in a place and time when you will remain undisturbed and on a consistent basis to receive long-term benefit.

### Brainwave Activity

Our brain operates primarily in four brainwave states. These states range from being wide awake and active, the *beta brainwave state*, to the calm, focused *alpha state*, and the creative, deeply meditative *theta state*, all the way down to low wave, deep, dreamless sleep, known as the *delta brainwave state*.

As you continue to use MindSpa on a regular basis, with the exception of the deep delta state, these states will become quite easily recognizable to you. You can use this recognition to maintain your desired target state, such as alert and focused, to calm and relaxed under pressure.

As an example, in practical terms this can mean that when you sense you are becoming agitated or stressed by situations, you will have at your disposal a better ability to exert conscious control over these situations. This will result in generally feeling better in a variety of situations that formally caused stress, sleep issues, low energy, and/or emotional discomfort. Through regular use you will learn how to maintain your desired target state.

The following section contains a short primer on the four brainwave states. This will help you to better understand how you can get maximum benefit from the MindSpa programs.

**Beta** frequencies are measured from approximately 13 to 40 Hertz (Hz.) or cycles per second. Low or moderate amplitude beta corresponds to our normal waking state of alertness where the vast majority of routine thinking and physical functioning occur.

High amplitude, fast beta generally reflects a state of heightened anxiety or stress, and feelings of agitation and discomfort due to mental over-activity. This is associated with what is commonly known as the fight or flight state.

When the high amplitude beta state is maintained for extended periods it leaves us feeling drained of energy and over time can erode our physical and emotional well-being resulting in health problems. Unfortunately, many of us live in this state far too much due to the pressures modern society places upon us.

Using MindSpa's relaxation programs on a regular, ongoing basis can significantly help you to reduce undesirable high amplitude beta activity. When you encounter common stress producing situations you will be better able to maintain an inner calmness with better control of your life. Conversely, when you feel like you need a quick pick up, or when you just do not feel as mentally sharp as you would like to feel, MindSpa provides stimulation programs for entering the beta state.

**Alpha** frequencies are measured from approximately 8 to 13 Hz. This represents a relaxed state associated with external attention. It is the wakefulness state of relaxed and effortless alertness in higher alpha. Lower alpha wave activity is associated with the deeply relaxing meditative states.

Alpha waves are utilized for mental relaxation, accelerated learning, the creative process and peak performance in areas such as business, sports and the arts. We enter into the alpha state during light meditation. Some other examples of the alpha state are when performing relaxation-inducing activities such as reading a good book, certain forms of exercising, or going for a quiet walk in the country.

If you want to resolve mental stress or sleep issues, MindSpa provides excellent passive training through regular use. It can help quiet the internal dialog which can so often lead to stress and sleep issues. Reducing this will provide a positive impact on quality of life.

**Theta** frequencies are measured from approximately 4 to 8 Hz. This represents a deeply relaxed state of free flowing inward focus. It is a more or less elusive state we naturally enter for a few minutes just before falling asleep and just before waking when vivid internal imagery is produced without conscious effort. It is also the deep meditation state and the seat of the creative process. The doorway to theta is by entering the alpha state on a regular basis. Under normal circumstances we will go in and out of the theta state for several seconds to several minutes at a time.

The great inventor, Thomas Edison, frequently took afternoon naps and found them particularly helpful when confronted with a difficult problem. He developed a technique where he would sit in a chair holding steel balls in one hand above a pan of

water. Just as he dozed off, his hand would relax releasing the balls, waking him up allowing him to reflect on what he was thinking while in that twilight state between alertness and sleep. This is what we now know as the creative theta state. Many greats throughout history have used similar techniques that we commonly refer today to as a *power nap*.

**Delta** frequencies are measured from approximately 0.5 to 3 Hz.

This is where the majority of physical and deep mental regeneration take place. This is considered the dreamless, “deep sleep” state. Rather than specifically utilizing delta frequencies in MindSpa programs, the delta state is entered through the natural sleep cycle. MindSpa helps train the mind to enter a deep state of relaxation that will lead toward more effectively reaching the delta state.

With regular use, MindSpa will become an indispensable tool that can help reduce stress which will result in better, deeper quality sleep, a sharper mind and ultimately, a better quality of life. We wish you much enjoyment!

### **Package Contents**

The MindSpa system includes the following components:

- o Microprocessor-based control unit with twelve proprietary Programs
- o High-response audio earphones
- o Multi-Purpose Glasses™
- o Custom padded carrying case
- o Four AAA batteries
- o Audio patch cord
- o Instruction and Use Guide
- o 1 Year Limited Warranty
- o Optional AC adapter 110v / 7.5v 200ma

### **How to begin**

Remove the protective tab from the battery compartment. This will activate the unit.

Plug the Multi-Purpose Glasses into the jack located on the left side of the unit. Plug the headphones into the jack located on the upper right hand side of the unit. The On/Off switch is located on the left hand side. Set the volume and brightness to a low level when first starting out. The light and brightness settings range from levels 1 - 16.

If you have the optional adapter, you may plug it in to the left hand side of your unit. You may purchase an 110v 60cycle optional adapter from A/V Stim, or for other countries, purchase a third-party adapter provided it meets the 7.5v 200ma specifications. **Do not use adapters of different milliamp or voltage output as this could result in permanent damage and void your warranty.**

## **Features & Operation**

This section will help familiarize you with the various easy-to-use features. For further advice, or if you have any difficulties using MindSpa, refer to the Frequently Asked Questions section of the manual.

### **Program Mode**

The current program number is displayed when the unit is turned on. To choose a program, press the up or down buttons located on the left front of the unit. Press the Start/Stop/Pause button to begin your program. Note: Hold either button down for one second to automatically run through the various programs, volume or light intensity settings.

### **Light and Volume Settings**

The light and volume controls may be adjusted from a setting of 1 - 16. A small headphone or glasses logo will be displayed with the current setting. Start by setting the brightness and volume levels at a low, comfortable level. Adjust to slightly higher levels when bright light or outside noise is present. We recommend beginning with light level 3, and sound level 1.

### **Countdown Timer**

Once you press the Start/Stop/Pause button the display will begin a ten second countdown. This provides time to comfortably position yourself. You may override the ten second countdown by pressing the button a second time. The program will begin immediately.

### **Time Remaining Display**

The display will countdown the minutes and seconds remaining in your program. A small arrow on the display will indicate the program is active.

### **Pause/Stop**

To pause during a program, briefly press the Start/Stop/Pause button, press a second time to continue. You may stop a program by holding the button down for two seconds, or by simply turning the unit off.

### **Gentle On**

Each program begins gradually. This feature allows the volume and light intensity to gently increase over several seconds to enhance personal comfort level.

### **Sound**

The MindSpa programs utilize specific tones to help enter the proper mind state. Always use the headphones provided with your unit, or other good quality headphones set at low to moderate levels.

### **Battery Saving Auto-Off Feature**

To preserve batteries, the unit will automatically turn itself off when it sits idle for five minutes. To reset, return the On/Off switch to the Off position and then back to the On position. The last program will be displayed.

### **Low Battery Indicator**

When the batteries run low, the display will gradually begin to dim and a small battery icon will appear in the display indicating it is time to replace the batteries. Replace the batteries if you begin to experience erratic operation.

### **Auxiliary Input**

You can enhance the effect of your programs at times by playing music or other materials designed for relaxation or learning along with the programs.

Determine the length of the program you are planning to listen to, then choose a

relaxation program of approximately the same length. You may use the included patch cord to mix the recorded material along with MindSpa's built-in sounds. Optionally you may bypass the unit and listen directly to the recorded material while running one of the relaxation programs with just the glasses. Both methods can be very effective.

Plug the audio patch cord into the auxiliary jack, located on the lower right-hand side. Plug the other end into your compact disc player or MP3 headphone output jack. Set the volume at a low to mid-range level and start the player when you begin your program. Once you begin, the Aux In symbol will be displayed

### **Using the Active Sync™ Mode**

MindSpa supports popular third party light and sound synchronization programs. When specially encoded compact discs are played through MindSpa, the circuit converts the encoded digital signals into light pulses. These digital signals are recorded above the range of normal hearing so full recording fidelity is maintained. We provide downloads of several free music tracks on our website. Please refer to the enclosed brochure for download instructions.

### **Use with recorded materials**

MindSpa can offer excellent assistance when using various types of recorded materials such as hypnosis and self-improvement programs. MindSpa can help move your mind into the optimal calm, quiet state so this material can be most effective.

Press and hold the Backlight button for approximately two seconds until the letters "AS" are displayed. This indicates MindSpa is now in Active Sync mode.

1. Begin by setting your CD player volume to about 3/4 of maximum.
2. You must disable anti-skip and bass boost if your player has either of both of these features, otherwise the alternate program will not play properly.
3. Light adjustments are made via the light intensity setting. Start it at level 10 or above.
4. When the program has started, adjust the volume setting to a comfortable level.

*Note: This mode overrides the auto-off feature, so remember to manually turn off your unit when you complete your program.*

## **Multi-Purpose Glasses™**

MindSpa now includes the latest advance in auditory/visual technology. Our unique twelve light peripheral design is the culmination of more than a decade of experience, developed in conjunction with our international research and development team. Your Multi-Purpose glasses are an effective tool for learning, stress reduction, concentration and focus, performance enhancement, Power Napping and Micro Napping™.

### **Using the Multi-Purpose Glasses**

Our Multi-Purpose glasses may be used either with eyes closed or open. Closed eye use is the most common method for use with MindSpa. For best results we recommend use in low ambient light conditions.

There are many situations when open-eye use can provide effective results. Please visit our website to download our e-Book for open eye use.

We first pioneered the use of open-eye stimulation several years ago while working with students to improve retention of reading material, and improve their ability to focus. We have also worked extensively with elite and Olympic athletes on performance enhancement.

Our findings show that open-eye use is beneficial where physical movement is kept at a minimum, such as visualization exercises, learning, and certain creative pursuits such as music, art, and rote memorization of written material.

When using with eyes open, maintain low to moderate light levels. For maximum effectiveness, look past the lights rather than directly into them.

### **The Nap Process**

Another common use is for the rapidly growing exercise of Power Napping, and our own process – Micro Napping™.

There is a growing body of scientific evidence demonstrating daily naps are a highly productive use of time and will promote mental alertness, creativity, better concentration, increases in worker and student efficiency, accuracy and output. One recent Japanese study demonstrated student test scores markedly increased with daily power naps.

In addition to various health benefits, naps have an overall positive performance impact. We highly suggest making naps an integral part of your daily regimen.

### **Sleeping and napping**

Taking a nap while using MindSpa is different from sleep. Sleeping is primarily a regenerative process following a regular, cyclic pattern of deep, dreamless sleep to light (REM) sleep. Napping is primarily a performance-based process where you remain at the edge of consciousness in a sleep-like state for a relatively short period of time. Sleeping and napping both help to enhance information processing and learning.

A “Power Nap” is a 20 - 40 minute period of revitalization resulting in increased energy and productivity, and provides reduction in feelings of stress and anxiety. The effect is cumulative when practiced on a regular basis providing both short and long-term benefits. A recent study by NASA’s Fatigue Countermeasures Program found that pilots who took a short nap improved their performance by 34% and their alertness by 54%.

Among the best times for power napping is when you feel a general lowering of your energy level, as commonly experienced in early or mid-afternoon. Generally, one power nap during the day or early evening is quite sufficient.

Micro Naps are very short sessions ranging from 3 to 15 minutes in length resulting in increased alertness and focus. Think of them as short “booster” sessions.

There are several ways you can micro nap such as for a short break from work, between studies, before a presentation, or for a break when driving long distances. You can even micro nap with eyes open or closed while on the phone, or while using the computer for increased focus. As an option, you can choose one or more of your favorite short pieces of music to use in conjunction with your micro napping session.

Program 1 is an excellent ten minute micro nap session. You may practice with eyes open or closed. For a quick lift, we suggest trying its use in place of caffeine or sugar-based snacks.

Micro napping may be practiced several times per day. They may also be used before or after a power nap. Use of either stimulation or relaxation programs is appropriate for power napping and micro napping depending upon the time of day and circumstances.

Please visit our website for free additional micro nap download sessions that may be used in conjunction with our Active Sync function. Please visit often as we will be adding more programs on a regular basis.

### **Studying**

Use our memory/cognitive stimulation Programs 9, 10, or 12. Program 10 is a more stimulating version of Program 9. Program 12 is a more stimulating version of Program 10. Program 11 is the mirror opposite of Program 12 with the frequencies in Program 11 running low to high, while Programs 9, 10 and 12 run from high to low. Please read the MindSpa Programs section and online for further instructions for use, or refer to our website for program graphs.

Start by using Program 9 the first few times, and as you become more acclimated to using the stimulation programs, you may progress to Programs 10 and 12 at your own pace. We recommend using the stimulation programs no more often once every two or three days. Not suggested for night use as it may be over-stimulating. You may use any one of the relaxation Programs 2 through 8 on alternate days.

### **Sports performance**

There are several ways the Multi-Purpose glasses may be successfully incorporated. For example as a tool for visualization, the open eye programs may be used while viewing a video of an outstanding performance, yours or someone else's. We suggest using one of the eight relaxation programs. Being in a deeply relaxed state will help you to incorporate visualizing yourself performing at your best.

If your sport requires memorizing a playbook, use the learning technique suggested above. We do not recommend use in actual practice unless supervised by a professional trainer. There are activities where open eye use can be used during practice such as in golf for putting practice. However, as recommended, these are not for use where the full use of your vision and attention are required, unless you are under the supervision of a professional trainer.

### **Care of your glasses**

Treat the Multi-Purpose lenses with care as they will damage if abused or mishandled. To avoid scratching the lens store in the carry case. On occasion, gently clean the glasses with a clean, soft, slightly damp cloth.

The arms on the visual stimulation glasses are adjustable. Hold firmly by the inner arm and gently pull or push. Adjust so they fit comfortably. If necessary, periodically

lightly tighten the arm screws.

### **About LEDs**

LED, light emitting diodes, are semiconductor devices made out of pure silicon. Minute amounts of chemical impurities that are added to the silicon, such as gallium, arsenide, indium, and nitride, and then hermetically sealed in plastic resin. Each chemical provides a different color output.

Normal light bulbs produce light by heating a metal filament until it is white hot. However, when a very small current passes through the LED, it emits photons. Because LEDs produce photons directly they emit negligible amounts of heat and electrical radiation.

We are using the most sophisticated LED surface mount technology currently available. These leds are considerably smaller, and offer several distinct advantages:

- They are highly efficient allowing us to provide more leds per eye with lower power consumption.
- They provide an excellent high intensity light with superior white wavelength characteristics, and long term reliability.
- The wide dispersal angle ensures full coverage providing enhanced results.

### **About Ruth Olmstead, Ph.D. – MindSpa Program Author**

The twelve proprietary MindSpa programs were developed exclusively for A/V Stim by Ruth Olmstead, Ph.D. Dr. Olmstead holds her degree in Psychology, and is among the recognized experts in the field of Auditory and Visual Stimulation (AVS). She has extensive experience treating children and adults diagnosed with learning disabilities, anxiety, depression, and a number of neurological disorders.

Dr. Olmstead is certified in the application of electroencephalogram (EEG) biofeedback, and since 1991 has researched, developed, and published a number of specific intervention protocols in the application of AVS. Additionally, she trains licensed therapists in the application of AVS. Dr. Olmstead currently maintains a full-time practice in the Fort Lauderdale, Florida area.

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- Use with children or minors only with prior parental consent and monitoring.
- Do not use while on medication or while under the influence of drugs or alcohol.
- Do not use while operating machinery, vehicles or other mechanical devices.
- Discontinue use if experiencing any sort of adverse reactions such as dizziness, migraine, or severe anxiety. Please consult with a medical professional, if these symptoms occur.

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## **Part II - Introduction to Programs**

### **How to gain maximum benefit from the MindSpa**

These programs have been tested in clinical settings and are safe for use by adults and children who have no history of epilepsy. We recommend use by children with adult supervision. (Read Special Considerations on the prior page before beginning use.)

We suggest using the MindSpa system as an integral part of a program combining regular exercise with proper nutrition and adequate rest.

For most, it is best to begin with the relaxation programs before advancing to the stimulation programs. This will allow for proper acclimation to the light/sound relaxation experience. The relaxation programs may be used as often as several times per day, and on a daily basis, or as few as three to four times per week depending on your schedule. As previously stated, the key to success is to develop a regular routine.

As you enter each session, allow your thoughts to flow freely, which will help enable deep relaxation. After the first few minutes you will begin to feel yourself entering a calm, focused state of awareness. It is natural to drift into a light sleep-like state as this is part of the MindSpa process. Just let go and enjoy!

When we are stressed our breathing tends to be shallow and high in the upper area of our lungs. When you begin your program, breathe deeply and completely so you feel the motion through your diaphragm.

To practice this method, place your hand on your stomach. It should move up and down while your chest remains relatively still. Breathe in slowly and deeply, then hold for a count of three, and breathe out slowly and completely. After a few moments begin the process again. With a little time and practice your rhythmic breathing will become automatic.

Now, also practice another very simple but effective method called muscle awareness. Exercise by relaxing your facial muscles, your limbs and your back one by one. Start at the top and work down through every part of your body.

As you breathe for relaxation, pay attention to your body and become aware of any tension you feel. Identify these spots and then just let go of the tension in that area. Allow your mind to drift free for a few minutes from any concerns.

### **Using MindSpa Programs**

#### **Relaxation**

Use our Progressive Relaxation Programs™ 1 – 8 to go into progressively deeper relaxation states. As a general suggestion for the first two weeks, start with Program 3 in the morning and Program 7 in the evening. After two weeks you can progress through each Program 4 - 8 as each is deeper than the previous one.

#### **Mental Sharpness**

We suggest using Program 9 during the day once every two or three days. (Night use can be too stimulating for some and may cause sleep issues.) You can use any of the relaxation programs on alternate days or times.

After several initial Program 9 sessions, you can move to Program 10, the next higher frequency program in the series, and use once every two or three days. If you find you would like even a higher mental stimulation level you can use Program 12 up to once every three days.

**Focus and Attention**

To assist with general focus and attention issues, use Programs 11 and 12 on an alternate basis every three days for a period of at least six weeks. Keep the lights as bright as is comfortable. Program 11 starts with low theta frequencies and progresses to high beta. Program 12 starts at high beta frequency and progresses to the theta frequency range.

These two programs act like a type of stretching exercise for the mind. It is theorized, and subsequently demonstrated in Dr. Olmstead's research as an effective method for the improvement of the most common focus and attention issues in children and adults.

**Sleep and Common Stress**

To help relax into sleep, we suggest using the MindSpa Progressive Relaxation System™ over a period of at least four to eight weeks on a regular basis. As mentioned, the effects of using MindSpa on a regular basis are cumulative.

There are a number of causes for lack of sleep or sleep difficulties. We focus on what we believe are among the primary causes – common mental stress. We address the underlying cause rather than the outward result. Stress can manifest itself at night as an overactive mind in a high amplitude beta state. In other words; it is that internal dialog we each carry on inside our head that can overwhelm our ability to get a good night's rest.

In a manner of speaking, as you use MindSpa to help reduce stress, you are simultaneously reducing the volume and intensity of the mind's internal dialog, the mental chatter, especially at night. You will find it is a simple but very powerful process. We are gratified to report receiving positive feedback from many MindSpa owners, including those who have suffered from poor quality sleep for years.

## **Program Description**

### **Program 1 Alpha Recharge** **10 minutes**

Type: Low beta/mid-alpha 13 - 10 Hz

This short program can provide a sense of visual colors and patterns along with feelings of relaxation and revitalization. It can be helpful on a daily basis for mental recharging. The exhilarating effect of this program can help lead to calmness, increased concentration and focus, enhanced cognition, and alertness. Use this program as often as you like. Try it in place of caffeine for a quick boost.

### **Relaxation Programs 2 - 8**

The ability to relieve stress and tension through relaxation can be learned and integrated into our everyday lives. Symptoms of common anxiety may be alleviated by learning to consciously move oneself into a calm state of mind. For example, the night before a big event or test, prior to giving an oral report, or performing a physical or artistic activity in front of a group are some common activities that can generate tension, anxiety and sleeplessness.

Anxiety is one of the principal causes of reduced performance. When anxious, even the well-prepared can perform below their true capabilities. These programs are designed to help train the mind to easily enter into relaxed states and to become part of our normal waking state. A calm disposition can also help in confidence building which translates to better academic, business and athletic performance.

These relaxation programs may also be utilized before going to sleep as they can help to gradually slow down mental activity. The relaxing benefits will allow for a more restful night's sleep waking up feeling revitalized.

### **Program 2 Light Alpha Relaxation** **22 minutes** Mid-beta to mid-alpha 15 – 10 Hz

### **Program 3 Deep Alpha Relaxation I** **23 minutes** Low-beta to low alpha 13 – 8 Hz

### **Program 4 Deep Alpha Relaxation II** **23 minutes** Mid-beta to low alpha/high theta 14 – 7 Hz

### **Program 5 Theta Induction I** **24 minutes** Mid-beta to theta 16 – 6 Hz

### **Program 6 Theta Induction II** **23 minutes** Low beta to low theta 14 – 4 Hz

### **Program 7 Theta Induction III** **30 minutes** Low beta to low theta 14 – 4 Hz

### **Program 8 Theta Induction IV** **40 minutes** Mid-beta to theta 15 – 6 Hz

### **Stimulation / Performance Enhancement Programs**

Use these programs two to three times per week for a minimum of four to six weeks for optimal benefit. The stimulation programs may also be helpful in overcoming feelings of mental lethargy that, for example, is common during or after long transoceanic flights. When changing several time zones, we recommend use upon or shortly after destination arrival. However, we recommend not using prior to retiring as these programs may be somewhat over-stimulating. They may also be useful for many performance-related tasks including athletic competition.

#### **Program 9 Memory Enrichment 21 Minutes**

High to low beta 17 - 13 Hz

Begin using this program for overall academic improvement. Use initially two to three times per week for four to six weeks to improve focus skills. Regular use may have a positive and long lasting effect with noted improvement in concentration and alertness.

#### **Program 10 Cognitive Enhancement 22 Minutes**

High to low beta 35 - 13 Hz

This program is an excellent follow-up to Program 9 for improved mental functioning. It can also be useful for any performance-related task including athletic competition, intense work requiring high mental capacity, or complex activities that require superior mental concentration. This program and Program 12 can help calm the over-active mind.

#### **Program 11 Advanced Attention for Children 35 Minutes**

Low to very high beta 13 - 40 Hz

This program has been found to be helpful as a mood elevator and for improving motivation in adults. Many users report noticeable improvements after two to three weeks of use. It can be effective for children who are experiencing difficulty attending to task. Use may continue past the recommended four week period. We suggest consulting with a medical professional before beginning use of this program for children with symptoms of hyperactivity. If experiencing symptoms of anxiety, we suggest not using this program.

#### **Program 12 Stimulus Reduction/Advanced Focus for Adults 35 Minutes**

Very high to low beta 40 - 13 Hz

This program is designed to help improve focus, attention and concentration abilities in adults. This program may also be very helpful in improving problem solving abilities and to reduce feelings associated with mental over-stimulation and over-activity.

## **Program 00 Circadian Rhythm Balance**

Patented Protocol for Circadian Rhythm Balance and Alignment

Program # 00 incorporates exclusive patented technology into our fifth generation MindSpa. This solid light program (non-blinking) is designed for use specifically in conjunction with our CalmBlue open eye LED Glasses.

### **Our Internal Body Clock**

Light is a powerful regulator of the human circadian system, the “body clock.” The circadian rhythm is the internal 24 hour clock controlling physiological changes that occur with the natural light-dark cycle of the day.

The SCN or suprachiasmatic nucleus acts as the central processing system for our body clock. It is located in a part of the brain, the hypothalamus, just above the point where the optic nerves cross. Light reaches photoreceptors in the back of the eye, the retina, generating signals that travel along the optic nerve to several areas of the brain including the SCN, which is a non-visual part of the brain. In addition to sleep/wake cycle regulation, the SCN also plays a primary role in hormone secretion, and body temperature and blood pressure regulation among other daily functions.

In the presence of light, or the lack thereof, signals from the SCN travel to various parts of the brain, including the pineal gland. The pineal gland is responsible for controlling production of the hormone melatonin.

Melatonin is the sleep hormone. Melatonin levels normally increase in the absence of light. Exposure to specific light frequencies suppresses melatonin production for several hours. Melatonin makes us feel drowsy and plays a role in mood change. However, this only begins to describe the critical role Melatonin plays in regulating body function. We suggest further independent reading on its role. Here is one of many links: <http://www.umm.edu/altmed/articles/melatonin-000315.htm>

### **The Retina and our Body Clock**

In just the past few years, scientists discovered a specialized set of cells in the retina that respond specifically to the action spectrum. Until this discovery, for about the last 200 years it was believed the retina only contained two types of specialized photoreceptors, the rods and cones.

We now know the retina contains three types of specialized photoreceptors that respond to the visible light spectrum. Visible light ranges from approximately 370 nm to 730 nm. These photoreceptors consist of the rods, cones and the recently discovered light/dark receptors.

The rods are the most numerous photoreceptors and the most sensitive to light, but are not sensitive to color. The retina contains approximately 110 - 125,000,000 rods. They are primarily responsible for dim light vision. The rods peak in the blue range and have almost no response to red light. Known as the scotopic photoreceptor system, the peak wavelength sensitivity is 507 nm, the green/blue-green color range.

The cones are color sensitive and divided primarily into red and green cones with a small percentage of blue cones. There are approximately 6.5 million cones in the retina divided into approximately 64% red sensitive cones, 32% green cones, and 2% blue cones. The blue cones are more sensitive to light than the red or green cones. The cones are responsible for high resolution vision known as photopic photoreceptor system. The cones have a peak wavelength sensitivity of 555 nm, the green spectrum.

The melanopsin receptors, also referred to as the light/dark photoreceptors, discovered just a few years ago are sensitive to the narrow blue wavelength action spectrum. These are independent of the classic rod and cone photoreceptors used for vision, and

are not part of the visual system. They are active even with eyes closed and while asleep. It is theorized that blue sky exposure is how these ganglion cell photoreceptors evolved their specialized purpose.

These photoreceptors regulate circadian rhythms primarily via melatonin secretion. When exposed to this specific band, melatonin production is suppressed for several hours.

### **The Melatonin Action Spectrum**

A specific component of natural sunlight, short wavelength blue light in the narrow 446-483 nanometer (nm) wavelength is the melatonin action spectrum. Researchers recently discovered that this specific blue wavelength plays a major role in aligning and resetting the body clock through melatonin suppression. As this is also the wavelength of the clear, blue sky, it follows that exposure to the sky.

Approximately 460-470 nm is the peak light range for melatonin suppression. The MindSpa CalmBlue glasses are tuned within a few nanometers of the peak frequency range making them very effective for resetting the body clock.

### **Circadian Rhythm Disorders**

Circadian rhythm disorders are typically related to sudden and/or extreme changes in the relationship between exposure to environmental light and activity. For example, circadian rhythm disorders are known to be associated with change in geographical location (jet lag), aging, and night activity (night time shift workers).

Another common type of circadian rhythm disorder is seasonal affective disorder (SAD), which is characterized by symptoms such as lethargy and depression during the winter seasons when the duration of daylight is reduced. Due to decreased light exposure melatonin production continues during the waking hours.

Symptoms much like jet lag are common in people who work nights or who perform shift work. Because shift work schedules are at odds with powerful sleep-regulating cues like sunlight, they often become uncontrollably drowsy during work, and they may suffer insomnia or other problems when they try to sleep.

Shift workers have an increased risk of heart problems, digestive disturbances, and emotional and mental problems, all of which may be related to their sleeping problems. The number and severity of workplace accidents also tend to increase during the night shift. Recent evidence suggests it may be possible to reduce shift-related fatigue by exposure to specific frequencies of blue light in the workplace, minimizing shift changes, and taking scheduled naps.

Sunlight also causes other changes in the body, such as increases in serotonin production. Serotonin neurotransmitter production increases when a person is exposed to sunlight. Low levels of serotonin are associated with depression and mood swings. Along with using MindSpa, it is important to get as much light as possible every day for health, balance and general well-being. This becomes even more necessary in the winter when light levels are low.

### **Using Program 00**

For general well being and balance use each morning shortly after waking up for a minimum of a one-half hour dosage though 45 to 60 minutes is preferred. Time of year and location play an important role. If you are receiving low exposure to natural light use more often to maintain circadian balance.

For general sleep-related issues such as going to sleep and waking up early, use every morning. One-half hour to one hour per day, each day should be sufficient for most. This is known as an advanced phase response, meaning going to sleep earlier than

usual.

If you are falling asleep too early and/or waking up too early, known as delayed phase response, use in the late afternoon or early evening. We do not suggest use close to bedtime as this may cause trouble falling asleep. Use for 30 – 60 minutes a minimum of two to three hours before retiring to bed.

Long term changes require a minimum of use every day for a minimum of one-half hour, and preferably two sessions in the morning of one-half hour each. Continue use for at least one month and preferably three to four months of regular daily dosages to experience long term benefit. We recommend consulting a medical professional before beginning any long term program.

Light is the most powerful method for resetting the internal clock when travelling. For jet lag British Air offers an excellent jet lag calculator for calculating when you need light exposure and when you should avoid light. <http://www.britishairways.com>.

For common circadian related disorders such as seasonal affective disorder, use Program 00 early in the morning or upon awakening for a minimum of 45 – 60 minutes every day during the winter months.

## Additional Advice for Care and Use

Treat the MindSpa with the care it deserves and it will reward you with a virtually unlimited, trouble-free life.

- Avoid using the MindSpa in unusually wet, dusty, or dirty environments.
- Keep the control unit and glasses away from excessive moisture. If you get them wet, do not turn on the unit. This could cause permanent damage to the circuitry. Instead, immediately remove the battery cover and the batteries. Allow the unit sufficient time to completely dry out before trying to use it. This may help prevent damage.
- Do not leave MindSpa components exposed to direct sunlight for an extended period of time, or inside a closed automobile on hot days.
- Remove the batteries if you are not using the unit for extended periods.
- Plug and unplug all connectors by the lead ends. Do not pull out the connectors by tugging on the wires; this may result in damage to the wire or unit and will void your manufacturer's limited warranty.

## Frequently Asked Questions

Q.: Nothing happens when the unit is switched on.

A.: Turn the unit on again. If the unit does not function, check to make sure the batteries are inserted properly. If the unit still does not function, try replacing the batteries with fresh aaa alkaline cells and try again.

Q.: The lights or the sound are not functioning properly.

A.: Check to make sure the jacks are fully plugged into the unit. On occasion, a new jack can be a little stiff at first use and require a little extra push. Also, check to make sure you have each accessory plugged into the correct jack. Please note that the end of the light jack is color coded.

Q.: The battery symbol is displayed and the unit stopped functioning properly. Or, the display is dim and the unit appears to be malfunctioning.

A.: This indicates the batteries have reached the end of their useful life. Replace your batteries with fresh aaa alkaline cells.

Q.: There is a loud clicking sound in the headphones.

A.: Check to make certain the headphones are plugged into the correct jack.

Q.: Can I suffer harm with my eyes open during a program?

A.: There is no harm in opening your eyes while the lights are flickering. The total brightness relative to even a small flashlight is quite low and there is no measurable radiation output.

Q.: Why do my eyelids flicker with the lights?

A.: Your nervous system is responding to light levels that are too high. Reduce the brightness of the lights so that they are at a more comfortable setting for you.

Q.: How often should I use the MindSpa?

A.: The key to the best results is regular use. Follow as directed. Just as with physical exercise, give your mind time to revitalize. Take a little time off between programs to gain maximum benefit. Expect to experience optimum results after several weeks of regular use.

Q.: What is the best way to sit during a session?

A.: Place yourself in a comfortable position and allow yourself a few moments to settle in before beginning a program. Keep your legs and arms uncrossed; sitting in an open position will help to reduce muscle tension.

Q.: May I lie down and what happens if I fall asleep?

A.: You may assume any position you find comfortable. Maximum benefit is gained by remaining in a relaxed, yet aware state. Benefits are still gained when you fall into a light sleep state. Sometimes a deep state of relaxation feels like you are asleep. If you find you wake up at the end of a program, you were more in a very deep, calm state rather than asleep.

Q.: How can I learn more about AVS?

A.: Please visit our website, [www.avstim.com](http://www.avstim.com) or email your questions to us at [avs@avstim.com](mailto:avs@avstim.com).

# MindSpa Personal Development System®

## LIMITED WARRANTY AND RELEASE FROM LIABILITY

Your MindSpa and accessories are warranted to be free of defects in material and workmanship for a period of one-year from date of purchase. Retain your sales receipt. Proof of purchase is required for all warranty repair or replacement.

Liability is limited solely to the repair or replacement of the product at the manufacturer's option. Manufacturer will repair or replace at its option without charge, other than transportation charges.

This warranty does not cover damage caused by accident, negligence or misuse.

If for any reason you believe your unit is faulty, please contact your retailer for warranty repair or replacement.

Purchaser must contact manufacturer for return authorization before returning an article for any reason. Shipping address and instructions will be given at that time. If any article must be returned to the manufacturer, the purchaser must be sure to include name, address, telephone and a description of the problem with the article.

NUMBER TO CALL FOR RETURN INSTRUCTIONS: 415 459-7724 or contact [repair@avstim.com](mailto:repair@avstim.com)

DISCLAIMER: Except as provided above, the purchaser acknowledges that the article is purchased as is. The manufacturer and seller specifically disclaim all warranties, expressed or implied, including warranties of merchantability and of fitness for a particular purchase or use. The manufacturer and seller also assume no liability for any loss or damage arising from theories of tortious conduct, including negligence and strict conduct.

RELEASE FROM LIABILITY: The purchaser understands that:

- MindSpa technology is intended for personal development purposes only.
- No other claims are made for MindSpa.
- A/V Stim, LLC & NeuroTech, Inc. cannot predict the suitability of any article for any application because of the individual physical and emotional makeup of each user.
- Persons with a history of seizures, hallucinations, head injuries or other mental problems should not use MindSpa products without first consulting their physician.
- MindSpa should be not be used by minors except with parental consent and monitoring.

The purchaser understands that A/V Stim, LLC & NeuroTech, Inc. or its agents or employees will not be held liable in any way for any occurrence of any nature in connection with the use of the MindSpa product by purchaser or any other person. In consideration of purchasing the product, the purchaser assumes all risks in connection with the use of the product, either by purchaser or by others. Purchaser understands and will assume all risks in connections of the use of the products by others.

LIMITATION OF DAMAGES: If, notwithstanding the foregoing, there should arise any question of liability on the part of the manufacturer or seller, the purchaser agrees that such liability will be limited to the cost of replacement of the products purchased.

PURCHASER REPRESENTATION: The purchaser represents that he/she is of legal age and is legally competent to understand and agree to the terms set forth herein, and that the terms are contractual and not mere recital. The purchaser has read or will fully read the product Use Guide before using any MindSpa article.

## **Optional ClamBlue™ Deep Relaxation glasses**

We highly recommend adding our specially developed blue light CalmBlue™ Deep Relaxation Glasses to your system. They are designed specifically to help promote attaining deep states of soothing relaxation. Please visit our website to order

### **Contact Information:**

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### **Instructions for returning a unit for repair or replacement**

MindSpa is manufactured to the highest standards of quality. However, if there should be a problem with your unit, we will repair or replace it with minimum delay. Please read carefully and follow the instructions below to ensure rapid handling of your claim.

- Call or contact us at the number listed above or via email and request a return authorization number.
- When returning the product you must include a copy of your original receipt.
- Include the return authorization number on the outside of the package and on the copy of your receipt.
- Make sure the product is packed securely to avoid damage during shipment.
- Send only via services where proof of delivery can be established such as UPS, FedEx, etc., or request proof of delivery via US or international Postal Systems. We are not responsible for items lost during shipment back to us.
- The product must be returned with all components and accompanying literature and be in undamaged condition. Any damage resulting from misuse, abuse or neglect, or if it is returned with missing parts will void this guarantee.
- Outbound and inbound shipping charges are borne at the user's expense and are not refundable.
- Most claim are handled immediately upon receipt however, please allow up to thirty days to complete processing of your return.

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Developed in the U.S.

Manufactured Exclusively in China for A/V Stim, LLC, NTI, Inc.

# MindSpa<sup>®</sup>

Personal Development System

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[www.avstim.com](http://www.avstim.com)

# Quick Start Guide

1. Remove the protective tab from the battery compartment. This will activate the batteries.
2. Plug the Multi-Purpose glasses into the jack located on the left side of the unit.
3. Plug the headphones into the jack located on the upper right side of the unit. Be sure all plugs are pushed firmly into the jacks.
4. The On/Off switch is located on the left side below the glasses output jack. Turn on and choose one of twelve programs by pressing the Program Up/Down buttons.
5. Start by adjusting the light intensity between setting 8 to 10 and volume between settings 1 to 4.
6. Press the Start/Stop/Pause button to begin. The program begins after a ten second countdown. When the program begins, you may readjust volume and lights to a comfortable level.
7. Sit or lie in a comfortable position. Close your eyes. As you begin your program take several slow, deep breathes into your diaphragm to help bring you into a calm and relaxed state, and release any muscle tension you may feel.

|            |                                 |            |
|------------|---------------------------------|------------|
| Program 1  | Alpha Recharge                  | 10 minutes |
| Program 2  | Light Alpha Relaxation          | 22 minutes |
| Program 3  | Deep Alpha Relaxation I         | 23 minutes |
| Program 4  | Deep Alpha Relaxation II        | 23 minutes |
| Program 5  | Theta Induction I               | 24 minutes |
| Program 6  | Theta Induction II              | 23 minutes |
| Program 7  | Theta Induction III             | 30 minutes |
| Program 8  | Theta Induction IV              | 40 minutes |
| Program 9  | Memory Enrichment               | 21 minutes |
| Program 10 | Cognitive Enhancement           | 22 minutes |
| Program 11 | Advanced Attention for Children | 35 minutes |
| Program 12 | Stimulus Reduction              | 35 minutes |