

**The Science Behind**

**VITALI-CHI**

**Relax**

## **WHAT IS A RELAX SESSION?**

A RELAX session is a method to help you still the mind. It uses Vitali-Chi, an Energy Balancing System to enhance calm and deep relaxation. The main aim of a RELAX session is to focus and quieten your mind so you can access tranquillity and peace no matter what is going on within you or around you. It teaches you to quieten a scattered brain that darts from thought to thought which prevents peace within. When this is accomplished a higher level of awareness and inner calm is created.

Your mind and your external reality maybe in a constant state of flux. Every second of your life you are creating or constructing your reality with what you are thinking about and what you take in from your environment. It really is up to you what you fill your head with and so you will need to choose wisely what you focus on.

When you focus on something other than your thoughts it causes the brainwaves to slow down and relax – to decelerate, but at the same time allows the amplitude of the brainwaves to increase and become more powerful. Because of this different communication in the brain, you start to perceive inter-connectedness and oneness with everything instead of separation.

The two sides of the brain synchronise, and electrical patterns begin to fire together in the same rhythm. It is this balancing of the brain that contributes to people seeing things in terms of how they are connected. You start to resonate and feel in harmony with nature and its laws.

Some hormonal and neurotransmitter changes occur and the stress chemical cortisol decreases which makes you feel calmer and more peaceful.

A RELAX session can help you to become your true nature which is happiness, peace and love. This is because when your mind clears you become conscious of who you really are as nothing is in the way.

It helps you to train your mind to only go where you want it to go and achieve quietness the rest of the time. When this happens, you are able to perceive things directly instead of having to perceive them behind a veil of mental chatter. Then in certain situations you'll be able to instantaneously and intuitively evaluate what's happening and know just what to do. This will make life flow in a very easy way.

### **What might you feel during a RELAX session?**

At first a lot of stresses may bubble up from the unconscious mind. When these stresses break the surface of your conscious awareness, they may take the form of random thoughts. You may twitch or hear different sounds or see little flashes of light in your visual field. These are just stresses in the nervous system bubbling up and being released.

When you release what needs to be released from the unconscious mind, your head will become clearer and clearer. As the thoughts release you will become very relaxed and mentally kind of float away. You may lose awareness of your outside environment.

### **Letting go**

All discomfort, all suffering and all pain are created by your resistance to something being the way it is. It may look like suffering and pain but it really isn't. It is caused by the resistance itself. No matter what is happening, if you can just be totally OK with the fact that it's happening, then whatever's going on may still have intensity, but it won't have negative intensity.

People get out of suffering when they stop resisting things being the way they are. This doesn't mean you can't do something about things being the way they are; it just means that you're not attached to a certain outcome while you're taking action. You can choose inner peace and happiness regardless of what is happening around you. Whereas if you're attached to things being a certain way, then you have to wait for things to be perfect in order to feel perfect and this may never happen.

## **Tools**

A RELAX session is a powerful tool for healing the mind, body and spirit. You will learn many tools which will help you:

- Be in the moment
- Reflect upon your past
- Know where you are going
- Problem solve and find answers to unresolved issues
- Figure out what action to take to improve your life
- Promote healing and prevent illness
- Clear out the past to make room for the new
- Understand your addictions and addictive behaviours
- Heal childhood trauma
- Release depression
- Assist the grieving process
- Balance your emotions
- Learn to forgive
- Face dilemmas
- Overcome anxiety
- Find your true self
- Find your life purpose
- Manifest your dreams
- Understand the meaning of your life
- Understand the connectedness to all living things
- Understand energy and universal energy

## **Summary**

- A RELAX session is a simple and effective method of calming the mind, body and spirit thus enabling access to your inner true being. A RELAX session helps to still the mind enabling solutions to issues you may generally find frustrating and which you may

resist. A RELAX session is a useful tool for healing and coping with many aspects in life.

- When first starting RELAX sessions you may be distracted by sounds or your mind may bring you lots of distracting thoughts or sensations. This is normal. Just let the sound, thought or sensation go and continue to meditate. In time the distractions will lessen and you will find relaxing will become easier.
- Deep relaxation releases natural healing substances (endorphins) and reduces stress chemicals. It alters the brainwaves to allow the mind and body to reach what is known as the 'Relaxation Response' which is a natural healing mechanism.

## **THE EFFECTS OF MEDITATION & RELAXATION**

### **Studies have proven that meditation and relaxation improve**

- **Grey Matter** –The more you practice meditation and relaxation the more you increase the density of grey matter which increases the vitality and strength of your thinking. Helps connect you to your feelings and enhances introspection. Helps self-control. Increases your ability to evaluate rewards and consequences. Stress and maltreatment in early life reduces grey matter.
- **Metacognition** – Increases the ability to stand back and watch your thoughts and feelings.
- **Cognitive function** - Improves perception, thinking, reasoning and remembering which improves comprehension of ideas and social and behavioural functioning. As you observe your thoughts and beliefs you notice how they influence your moods and behaviour and so you change distorted thinking. Mental dexterity and flexibility of thinking improves.
- **Neuroplasticity** – Neuroplasticity is the natural ability to change how the brain's neurons are connected and organised into circuits, which we call its synaptic wiring. Every time we learn something new or have a novel experience, the brain makes new synaptic connections to form new neural patterns or networks—and this happens at any age. When we utilise new circuits in new ways, we rewire the brain to fire in new sequences. From a neurological level, then, we are changed moment to moment by the thoughts we think, the information we learn, the events we experience, the reactions we have, the feelings we create, the memories we process, and even the dreams we embrace. All of these alter the way the brain works, producing new states of mind that are recorded in our brain. Every time we practice the new thought and action, we reinforce the rewiring of the brain. Meditation and relaxation helps change addictive behaviour, habits and thought patterns and encourages the brain to rewire and retrain itself to a positive way of being. It helps the brain to reach the Theta state, which is an optimal state for healing and regeneration. The neuroplasticity of our brain depends on our ability to change our perception of the world around us, to change our mind and to change our self.
- **Psychoneuroimmunology** - Demonstrates the mind/body connection. Every thought produces biochemical reactions in the brain, which match a feeling in the body. When you think happy, inspiring, or positive thoughts, our brain manufactures chemicals that make us feel joyful, inspired, or uplifted. For example, when we look forward to a pleasurable experience, the brain immediately makes a chemical neurotransmitter called dopamine, which turns the brain and body on in anticipation of that experience,

and we feel excited. If we have thoughts of hate, anger, or insecurity, the brain produces chemicals that the body responds to in a comparable way and we feel hateful, angry, or unworthy. Another chemical that our brain makes, called ACTH, signals the body to produce chemical secretions from the adrenal glands which make us feel threatened or aggressive. In response to that bodily feeling, the brain generates thoughts that produce corresponding chemical messengers, so that we begin to think the way we are feeling. Thinking creates feeling, and then feeling creates thinking, in a continuous biological feedback loop. This cycle eventually creates a particular state in the body - what we call a state of being - that determines the general nature of how we feel and behave. Meditation and relaxation help to switch off the amygdala 'fight/flight' button and lowers our stress levels which helps us shift from the sympathetic nervous system to the parasympathetic nervous system. It signals to our body that there is nothing to be afraid of. Meditation and relaxation help train your attention to focus on a bodily feeling which helps the thought lose its power.

- **Left brain/right brain balance** – It helps the brain connect the two hemispheres through the logic and creative aspects of the meditations which enables greater problem solving skills, enhanced study powers and improved creativity.
- **Creative, divergent, cognitive thinking, insight and problem solving** - Increases headspace so aids creative thinking and also helps clear negative self-messaging which blocks creativity. Reduces cognitive rigidity (an inability to think of different possible solutions to a problem) due to the tendency to be 'blinded' by experience and increases insight which helps problem solving. Promotes "divergent thinking", a type of thinking that allows many new ideas to be generated. It also impacts the way decisions are identified, made, implemented and assessed.
- **Emotional intelligence** – Increases the ability to manage one's emotions. It helps us to perceive the world, and to control and evaluate emotions. It helps us step back from a situation, look at it without emotion and respond to it without an automatic, preconditioned, emotional reaction.
- **Emotions and emotional control** - Increases activity in areas of the prefrontal cortex that help regulate emotions. Lowers the density of neurons in the amygdala and increases the density of neurons in areas involved in emotional control.
- **Anger** – We calm down as adrenaline switches off.
- **Rumination** – It stops perpetual negative thinking. Every thought produces biochemical reactions in the brain which match a feeling in the body. When you think happy thoughts the body feels good and when you think sad you feel sad. So thoughts become feelings and feelings become thoughts but meditation and relaxation can stop this loop because when you focus your attention on a feeling your thoughts lose their power. You learn to choose your thoughts.
- **Focus and self-control** - Changes brain structure and function – after just 11 hours of meditation and relaxation, structural changes around the anterior cingulate cortex, a part of the brain involved in monitoring our focus and self-control improves. Multi-tasking becomes easier because you are able to stay on tasks longer and make fewer task switches. Performance and ability improves as you learn new things which are dependent on the ability to focus. As we improve focus it helps resist distraction which increases our ability to control our impulses, emotions and achieve long-term goals.
- **Attention and concentration** - Improves our ability to sustain attention. It does this because our ability to concentrate on our breath for long periods of time and focus on

specific visualisations transfers over to other pursuits. Reduces impulsiveness and hyperactivity, so is good for all ages who have ADD and Hyperactivity Disorder.

- **Alertness** - Changes brain waves, leading to higher levels of alpha brainwaves which are associated with a state of wakeful relaxation. Regular meditation and relaxation keeps the brain in this alpha state. Increases gamma brain wave activity in the prefrontal cortex of the brain which is associated with higher mental activity and heightened awareness.
- **Academic success** - Improves academic success because of controlled impulses and focused attention. Improves our ability to focus under pressure - stress reduces what is called “working memory capacity” – the ability to retain thoughts in our mind and manipulate them. It significantly reduces “disturbance” or noise within the meditators’ brain.
- **Time management** - Improves time performance tasks, useful for anyone who has to work to deadlines.
- **Relaxation Response** - It initiates the “Relaxation Response” whereby the heart rate and respiration slows and the blood pressure drops.
- **Stress management** - Activates the “rest and digest” part of our nervous system, helping with stress management. Increases activity in the prefrontal cortex that helps regulate emotions, subsequently reducing stress. Stops our brain from over-processing too much information which is stressful. When beta waves decrease we see a decrease in overloaded information waiting to be processed. Stress related diseases are disorders of excessive stress responses.
- **Immune System & Response** – Reduces the stress chemical cortisol which suppresses the immune system. Increases left-side brain activity which increases immune response. Levels of antibodies increase. Regular meditation and relaxation practice reduces the amount of stress-related chemicals in our body, and prevents us from turning to unhealthy coping strategies.
- **Fear, worry and anxiety** - Reduces the reactivity of the amygdala - the part of the brain responsible for triggering fear, worry and anxiety and feeling threatened. Changes in breathing slow the heart and metabolism which ease palpitations and anxiety. Helps with anxiety management across various types of people: from those suffering with cancer, to those with social anxiety disorders and eating issues.
- **Depression and sadness** – Releases chemicals that boost motivation, psychological stability and mood and which also create calm, contentment and security. They help you feel happy and relaxed and help to calm an overstimulated and overwhelmed mind which renders you helpless, powerless, sad and depressed.
- **Sleep** – Relaxes and calms the mind of unresolved problems that inhibit sleep which affects all mind and body processes. Releases chemicals that effect the master biological clock which plays a vital role in orchestrating the circadian rhythms of multiple biological processes.
- **Memory and learning** - Brain density increases in areas connected to learning and memory processing. It is the brain’s outer cortex that is responsible for higher mental functions such as concentration, learning and memory. Preserves cognition and prevents dementia by reducing oxidative stress and other neurodegenerative trends (an overactive brain is linked to a number of mood and behavioural disorders, including schizophrenia, depression and autism).

- **Moods, anger, tension and stress** - Higher levels of brainwaves reduce negative moods and feelings including anger, tension and sadness. Positively influences the identification of emotions and the communication of emotions, as well as regulating the expression of anger
- **Relationships** - Improves our relationships. The more relaxed, grounded and self-accepting we are, the more we are able to relate to others. It helps non-judgmental acceptance and with these changes we are better able to identify and describe our feelings. Helps us to access our true self which is hidden beneath the debris of negative thinking and negative messaging.
- **Kindness, empathy and compassion** - We become mindful and more observant of how we act and show more empathy towards others. Forgiveness, love, compassion and kindness develop from cleansing our minds of negativity.
- **Self-acceptance** - When we meditate, we become more capable of controlling, our thoughts. A key part of meditation revolves around noticing our thoughts without judging them or getting caught up in their stories or meanings. This helps us to develop a different perspective on our internal dialogue, develop a greater understanding of ourselves, and practice noticing our thoughts and feelings without attaching meaning or judgement to them.
- **Self-confidence** - When negative thoughts or feelings about ourselves come up during meditation, we practice simply noticing them in the moment. Over time, this leaves us better able to handle negative internal dialogue outside of meditation too.
- **Health** - Activates the “rest and digest” part of our nervous system, (parasympathetic nervous system), helping with stress management. Reduces activity in the sympathetic nervous system, which restores balance and homeostasis. Reduces autonomic nervous system activity, ultimately reducing blood pressure, pulse rate and respiratory rate. Helps to decrease blood pressure and regulate blood flow. Deep breathing increases the oxygen in the blood stream which speeds healing to the lungs, the stomach and the vital organs. Reduces blood pressure and regulates blood flow. May help prevent genetic damage as it increases telomere length. Telomeres are protein complexes that protect our genes, and shortened telomeres have been linked to various diseases. Reduced stress could help certain enzymes that lengthen telomeres. Lowers levels of lipid peroxide which can contribute to atherosclerosis and other chronic diseases associated with aging. Affects mechanisms that regulate blood glucose levels and insulin production, and in general can help combat diabetes by influencing the immune system, reducing oxidative stress and managing diabetes side effects. Influences brain chemical activity implicated in causing seizures. Repairs damaged brain structures, and changes brain activity patterns, and so can be an effective long-term epilepsy management strategy for many.
- **Pain** - Reduces chronic pain by 57 %. When you have accomplished deep relaxation you can reduce pain by over 90 %. Meditation and relaxation soothes the brain patterns underlying pain and, over time, these changes take root and alter the structure of the brain itself, so that patients no longer feel pain with the same intensity. Many say that they barely notice it at all. Releases endorphins that reduce pain - these chemicals are far more powerful than the strongest painkillers. Lowers levels of cortisol the stress hormone that causes inflammation. Relaxes and releases stress and tension that cause muscle and headaches.

- **Breathing** - Deep breathing increases the oxygen in the blood stream which speeds healing to the lungs, the stomach and the vital organs.
- **Skin** - Keeps the hormone levels balanced which leads to beautiful skin and radiant looks.
- **Longevity of cells** – Increases high telomerase activity which helps slow processes of cellular aging.
- **Spiritual wellbeing** - Helps us to raise our energy vibration to a higher consciousness. The ultimate consciousness being a bliss consciousness. Helps us to access our spiritual being. Feelings of forgiveness, love, compassion and kindness develop from cleansing our minds of negativity.

## NEUROTRANSMITTERS RELEASED DURING MEDITATION & RELAXATION

Brain chemicals called neurotransmitters are released during meditation and relaxation. Many are related to positive moods, happiness and relaxation.

### Neurotransmitter Imbalance

Neurotransmitters control your ability to focus, concentrate, and remember, as well as regulating mood, cravings, addictions, sleep, and more. When your neurotransmitters are out of balance you may feel out of control. If you get depressed for no apparent reason, feel overwhelmed by life, have trouble sleeping, or have negative thoughts that you just can't shake off, it is very possible that you have a neuro- transmitter imbalance. You may have become a shopaholic, chocoholic, caffeine addict, or much worse.

### Meditation and relaxation influences these neurotransmitters:

- **Endorphins** – Stimulates the pituitary gland and the hypothalamus, thus releasing endorphins. Endorphins reduce pain, stress and fear and enhance happiness. They are thought to reduce blood pressure.
- **Norepinephrine** – Locks the effect on the body of norepinephrine, an “emergency hormone” secreted in response to stress which cause changes in mood. This has a carry-over effect, because the body's response remains altered with regular meditation practice. A deficiency can lead to nervous depression and memory loss and it also controls food intake, regulates temperature, and hormonal secretions. It plays an important role in Alzheimer's, Parkinson's disease and Multiple Sclerosis.
- **Serotonin** – Boosts serotonin levels - serotonin is a main neurotransmitter that has profound influence over your mood and behaviour. It helps maintain psychological stability. It helps the Central Nervous System (CNS) and the Peripheral Nervous System (PNS). Depleted serotonin levels are directly linked to anxiety, bipolar disorder, low self-esteem, negative thoughts, OCD, SAD (seasonal affective disorder), depression, apathy, obesity, fatigue, insomnia, narcolepsy, sleep apnea, migraine headaches, premenstrual syndrome and fibromyalgia. It has a calming effect and eases tension and helps us feel less stressed, more relaxed and focused.
- **Oxytocin** – Releases oxytocin (these levels rise during sexual arousal, feeling in love and breastfeeding), is a pleasure hormone. It creates feelings of calm, contentment, and security, while reducing fear and anxiety.
- **Dopamine** – Increases the production of dopamine which eases addiction. It plays a key role in the brain's ability to experience pleasure, feel rewarded and maintain focus.

When dopamine is released from the nerve endings, it causes a pleasant feeling of will power and accomplishment. It is known as the “motivation molecule” and helps depression and apathy.

- **GABA** - Boosts GABA - (gamma aminobutyric acid) One of the major inhibitory neurotransmitters known for stabilising mood disorders. Anxiety, panic disorders, tension, stress, over-stimulation, overwhelm, insomnia, addiction and epilepsy are believed to be due to the failure to produce adequate levels of GABA. It also helps depression, heart palpitations, cold hands, and shortness of breath.
- **DHEA** - Increases your DHEA levels - (dehydroepiandrosterone). Low levels are strongly associated with the risk of heart attack, diabetes, cancer, osteoporosis, rheumatoid arthritis, obesity, lupus, fibromyalgia and chronic fatigue. DHEA enhances memory, alleviates depression, and causes a remarkable improvement in a person’s sense of psychological and physical well-being. Chronic disease may cause the adrenal glands to produce more of the immune suppressant cortisol and less DHEA. It also provides strong support to your immune system.
- **Melatonin** - Boosts Melatonin - a hormone manufactured in the brain by the pineal gland, from the amino acid tryptophan. Levels of melatonin in the blood peak before bedtime and its function is to create restful sleep. Research has also revealed that it is a powerful antioxidant. Stress, however, significantly lowers melatonin levels. People who meditate and relax deeply are able to maintain healthy levels of melatonin by reducing stress and restoring balance. As a result, they sleep more soundly and wake up feeling refreshed each morning.
- **HGH** – Dramatically boosts your HGH (human growth hormone) which sustains your tissues and organs all the way through your life. A diminishing supply after the age of 40 causes the frailty that comes with aging—decreased bone density, decreased muscle mass, increased body fat, weakening heart contractions, poor mood, lack of motivation, and poor exercise capacity.
- **Cortisol** - Lowers your levels of cortisol. Cortisol has been found to have effects such as decreased bone density, elevated blood pressure, suppressed thyroid function, weakened cognitive performance, chronic stress, blood sugar imbalances such as hyperglycaemia, decrease in muscle tissue, lowered immunity and inflammatory responses in the body, increased abdominal fat (which is related to many more health problems than fat deposited in other areas of the body), heart attacks, strokes, increased levels of “bad” cholesterol (LDL) and decreased levels of “good” cholesterol (HDL), which lead to other health problems.
- **Glutamate** - A sub-type of glutamate receptor appears to mediate the function of brain plasticity, an important process in learning and memory.
- **Acetylcholine** – Acetylcholine is a vitally important neurotransmitter for all autonomic nervous system transmissions. The ANS maintains equilibrium in the body and controls heart rate, digestion, respiration rate, salivation, perspiration, pupil dilation, the discharge of urine and sexual arousal. It helps in memory, motivation, perception and cognition and is associated with memory and learning. A decrease in levels leads to loss of memory, senile dementia, Alzheimer's and Multiple Sclerosis.
- **Dopamine & Acetylcholine Synergy** - Meditation and relaxation have an inhibitory influence over various brain centres. For instance, involuntary movements like tremors and chorea are suppressed by basal ganglia through the action of dopamine and

acetylcholine synergy. Any imbalance causes involuntary movements like chorea, tremors (Parkinson's Disease etc.). Similarly, loss of cortical control over the motor neurons of spinal cord leads to exaggerated muscle and tendon jerks due loss of inhibitory control of the higher motor cortex.

- **Nerve Growth Factor** – Increases Nerve Growth Factor which is a hormone like peptide, responsible for the growth and maintenance of various brain structures.
- **Vasopressin** - Enhances clarity, increases attention to detail, improves short-term memory and improves memory imprinting. Good for mental decline, senile dementia and diabetes insipidus.

## **ALTERING OUR BRAINWAVES DURING MEDITATION & RELAXATION**

The brain produces microscopic electrical frequencies as thoughts travel in the brain. The physical conduits of these thoughts are the millions of nerve cells (neurons) in the brain. Just as a radio signals out onto radio waves (a band of signals within a defined frequency), so the brain's activity also occurs in waves.

Brainwaves are the language of the brain. By attaching sensitive electrodes to the scalp, it is possible to measure accurately the type of brain wave that a subject is producing. The electrical activity emanating from the brain generates frequencies in waves which can be measured with Electroencephalography (EEG) and are calculated in two ways. The first is in frequency, which represents the number of times a wave repeats, or cycles, per second, called Hertz (Hz). The second is amplitude, which measures the power of the electrical impulse in the distance between the peaks and valleys that form the wave.

## Brainwave Frequencies

## Associated Mental Activity

Gamma +40 Hz



- Whole-brain activity
- "Super-learning"
- Sudden Insight

Beta 13-40 Hz



- Cognition
- Focus
- Analytical Thinking
- Stress/Anxiety (at higher frequencies)
- Fight or Flight Response (at higher frequencies)

Alpha 8-12.9 Hz



- Relaxation
- Creativity
- Light Meditative/Trance State
- Increased Serotonin Production
- Threshold to Unconscious Mind

Theta 4-7.9 Hz



- REM Sleep
- Increased Production of Catecholamines
- Access to Unconscious Mind
- Healing of Trauma and Addiction
- Deep Meditation
- Transcendent Mind States
- Lucid Dreaming

Delta 0.2-3.9 Hz



- Sleep/Therapy for Sleep Disorders
- Accelerated Physical Healing
- Deep Relaxation

## Five Major Categories of Brainwaves

There are five major categories of brainwaves, each corresponding to different activities. Meditation and relaxation enables us to move from higher frequency brainwaves to lower frequency, which activates different centres in the brain.

Slower wavelengths = more time between thoughts = more opportunity to skilfully choose which thoughts you invest in and what actions you take.

**Gamma Brainwaves (+40 Hz)** are the waves highest in frequency at above 40Hz. They also tend to be the lowest in amplitude. Gamma waves are present in whole brain functioning and

are associated with bursts of insight and information processing related to “super-learning” and peak performance. This is the state of hyperactivity and active learning. Gamma state is the most opportune time to retain information. This is why educators often have audiences jumping up and down or dancing around — to increase the likelihood of permanent assimilation of information. If over stimulated, it can lead to anxiety.

**Beta Brainwaves (13-40 Hz)** are lower in frequency than Gamma waves with slightly higher amplitude. They usually dominate in normal, waking consciousness, when you are processing information or engaged in activity or conversation. We are alert, aware and can concentrate and consciously learn. They are associated with the alert mind state of the prefrontal cortex. Analytical thinking, a state of alertness, and, at higher levels, anxiety and stress, feelings of separation, fight or flight response and dis-ease.

**Alpha Brainwaves (8-12.9 Hz)** are lower still than Beta waves, with even higher amplitude. They are active when the eyes are closed, or when the brain is not actively processing information. They are indicative of a relaxed, calm state of mind. Men and women have different dominant sides of the brain, which is why in general, women are more creative, emotional and intuitive (right brain dominancy) and men are more analytical (left brain dominancy). In Alpha state, we slow down the brain cycles and become very relaxed. That is when you are letting go of your ego, letting your body truly relax. When the brain hemispheres are in Alpha state, they are balanced and your brain releases Endorphin (natural pain control hormone) and Serotonin (the feel good hormone and natural anti- depressant) which enables you to come out of depression and to let stress fade away without the use of any medication.

In Alpha state we use our whole mind instead of only the dominant side, which enables us to think much better, and be creative at the same time. Memory improves and your problem solving ability is at its peak. Half an hour spent in Alpha state results in you feeling relaxed, stress free and literally smarter. There are also numerous positive health effects like rapid recovery, healing, enhancing your immune system, better sleep, peaceful feelings, warm hands and feet, a sense of well-being, improved academic performance, increased productivity in the workplace, reduced anxiety, etc.

We often find ourselves in an “alpha state” after a yoga class, light meditation, a walk in the woods, a pleasurable sexual encounter or during any activity that helps relax the body and mind. We are lucid, reflective and have a slightly diffused awareness.

An Alpha Brainwave State remains with you long after a meditation session. This state of mind is alert but calm”.

**Theta Brainwaves (4-7.9 Hz)** are slower than Gamma, Beta or Alpha waves and are typically of even greater amplitude. They are active during light sleep, including the REM dream state, and deep meditation. Theta state is also known as the “twilight” state as it is normally only momentarily experienced as you drift off to sleep (from Alpha) and arise from deep sleep (from Delta). The Theta state is the feeling we have when we wake up in the morning but are still not fully awake. When connected to Vitali-Chi you are able to get into Theta state more quickly than any other meditation or relaxation method.

In Theta state the brain suppresses the production of cortisol which is an important factor in aging, stress and our immune system. In contrast the brain produces catecholamines which are vital for learning and memory retention. Memory development is enhanced in this state and access to unconscious material, potential change in behaviour, intuition, sudden insight and creative ideas are increased. The Theta state is associated with visualisation.

Theta state is where a Psychologist takes you when dealing with repressed memories. It also improves your sleeping patterns.

**Delta Brainwaves (0.2-3.9 Hz)** are the slowest in frequency and the highest in amplitude. They are active in deep, dreamless sleep and in very deep, transcendental meditation where awareness is completely detached. Here we are naturally in a dreamless sleep or in a heavy trance with loss of body awareness. Delta levels allow access to the “collective unconscious”.

Delta is the dreamless sleep state. Usually children sleep in very deep Delta state and adults in a very light Delta state. When in deep Delta state, the brain produces Human Growth Hormone, which builds bone, muscle, tissue, hair, energy and slows down the ageing process. Just below 1 Hz. in a deep Delta state, the brain floods the body with endorphins which relieve pain without the need for pain killers and you can be pain-free for up to a few days. Tibetan monks who have been meditating for decades can reach this in an alert, wakened phase, but most of us reach this final state during deep, dreamless sleep.

The brain does not operate on only one frequency range at a time, all waves are constantly active at varying amplitudes, and typically one will dominate over the others. Over time, the prevalence of certain brainwave patterns over others will heavily influence – either positively or negatively – one’s frame of mind or even physical manifestations of health.

All of the frequencies are completely natural states of mind. You go from Beta to Alpha to Theta to Delta every time you go to sleep. Meditation and relaxation have been used as techniques to calm you down, empty your mind and experience relaxation at levels not possible when under stress or in Beta state.

### **Slowing the mind with meditation and relaxation**

1. The first part of the process is to quieten the conscious mind enough so that it gets in touch with the subconscious. This is the value of meditation. Until the mind slows down and leaves enough gaps in the constant stream of mental chatter, the issues bubbling up from our subconscious remain elusive. Normal brain wave recordings show waves of a frequency of greater than 12 cycles per second with a fairly small amplitude (height), looking a bit like a saw tooth pattern, (beta waves).
2. As meditation proceeds, the frequency slows to about 8-12 cycles per second (alpha waves) which is a focused attention state. It is like seeing a movie, and other things are blocked out.
3. In deeper alpha, we reach a twilight state like just drifting off to sleep, and the frequency drops further. This state is good for learning, and people feel very relaxed.
4. As meditation and relaxation deepen, the brain wave frequency slows further, to between 4 and 8 cycles per second becoming theta waves. This is the brain wave pattern

associated with dreaming during rapid eye movement sleep. It is also associated with visionary experiences, enhanced creativity and sudden breakthroughs.

5. As the brain quiets even further, the wave pattern continues to slow and grow in amplitude until we are experiencing waves which are large, but below 4 cycles per second. This is the delta wave pattern and represents the subconscious mind. The brainwaves by now are very large and slow. This is the state of deep dreamless sleep, but if it is experienced with awareness, as during meditation and relaxation, there is an intense feeling of oneness and connection with the underlying energy of life. Getting into this awareness of the subconscious mind can throw up all sorts of emotional difficulties, as long buried issues surface into awareness but as a result it has the potential to be very healing too.

### **Linking of the left and right brain**

The linking of left and right brain activities is important in producing a shift from learning to accelerated learning. Yet our society is very 'beta orientated'. We are busy thinking about the problem in hand, but don't leave ourselves sufficiently open to other influences, which would help us memorise faster and make the sort of less expected connections that we call creative thinking.

In beta you don't see the wood for concentrating on the trees. But learn to relax, increase the proportion of the alpha and ideally theta brainwaves, and you have created the conditions where you may begin to see the whole picture. 'Alpha' is a natural and receptive state of mind that we can all attain through the techniques of relaxation.

The theta brainwave pattern is especially interesting. It occurs spontaneously to most of us in the twilight state between being fully awake and falling asleep. Arthur Koestler called it 'reverie'. This drowsy stage is associated with fleeting semi-hallucinatory images. Thousands of artistic and literary inspirations and scientific inventions have been credited to this state, a sort of freeform thinking that puts you in touch with your subconscious.

Many psychologists would agree it is a reasonable hypothesis that, when left/right brain symbiosis takes place, conscious and subconscious are also united. The proportion of theta brainwaves becomes much higher than normal. This is the moment when logical left brain activity declines. The left brain, which normally acts as a filter or censor to the subconscious, drops its guard, and allows the more intuitive, emotional and creative depths of the right brain to become increasingly influential.

Studies have shown that when people were trained to achieve and maintain theta brainwaves increased, they did indeed learn much faster. Moreover, many emotional and attitudinal problems were solved at the same time. Not only can conflict and threat be diffused but intelligence can be increased by increasing theta waves.

The brain does not operate on only one frequency range at a time, all waves are constantly active at varying amplitudes, and typically one will dominate over the others. Over time, the prevalence of certain brainwave patterns over others will heavily influence – either positively or negatively – one's frame of mind or even physical manifestations of health.

## **New studies**

A new study has demonstrated that mindfulness meditation alters your brainwaves. By using brain scanners, Brown University neuroscientists discovered that mindfulness meditation alters alpha rhythms in the brain. These detectable rhythms may help regulate “how the brain processes and filters sensations,” like pain and bad memories. This may help explain the effects of mindfulness on physical symptoms and further shows strong connections between mind and body. Unlike Transcendental Meditation, which is a form of mantra meditation, mindfulness meditation focuses on the present moment. This “present-moment focus,” experts believe, improves well-being “by allowing individuals to become aware of their sensations, emotions and thoughts that arise in the mind without judgement or reactivity.” This form of meditation is used not only in meditation sessions, but also in mindfulness-based cognitive therapy and behaviour therapy for those suffering from recurrent depression.

With brain imaging technology called magnetoencephalography, the researchers showed that alpha rhythms in the brain increase as one focuses on their present sensory experiences. In their study, these changes occurred more strongly and clearly in those who have had mindfulness meditation training, compared to those who did not have that training.

The change in the ability for a person to alter their own alpha waves may prove useful to improve mood and reduce chronic pain. Some also claim this practice of mindfulness can improve one’s quality of life in chronic debilitating conditions like fibromyalgia, low-back pain, irritable bowel syndrome, or multiple sclerosis.

Brainwave research allows us to mimic these brainwave patterns. Through EEG studies found reaching all the way back to 1955 when Das and Gastaut checked out the brainwave patterns of some highly trained Yogis, all the way up to current day EEG studies, there is a pattern found among the most skilled of the skilled in yoga, meditation and lucid dreaming. These people manage to be completely aware while in deep meditation or even sleep (lucid dreaming). That is what sets the masters apart from normal meditators.

An electroencephalogram (EEG) is a test that detects electrical activity in your brain using small, flat metal discs (electrodes) attached to your scalp. It was found that meditation experts display an unusually high amplitude of 40 Hz Gamma brainwaves during deep meditation, allowing them to transcend to deep states while retaining a crystal clear awareness.

## **Expanded awareness as a tool**

Normally we function at Beta brainwaves (12.5 – 30 Hz). The deeper we go, the larger part of our brain and mind we get access to. So the deeper we can go whilst remaining aware, the more expanded our abilities become. At these deep levels you are accessing information from the universal mind, delivered through sound and images to your mind, which is not expanded enough in the normal Beta state to access this.

For most of us, our dreams and visions while sleeping and meditating is fairly random. However, if you were fully awake while still in those states, you could choose to explore any place you wanted with your mind, find answers to any question or create any sort of dream experience you wanted to. That would make you a "master", and the things you learnt, saw and heard in those deep states could be directly applied to your life. Be it music, art, ideas for inventions, investments or anything you wanted.

## **MRI IMAGES BEFORE AND AFTER MEDITATION & DEEP RELAXATION**

**Neuroscientist - Sarah Lazar Ph.D.**

One of the biggest things that happens to our brains when we meditate is that it stops processing so much information. Beta waves generally indicate a processing of information. When beta waves are decreased, we see a decrease in information processed. Using Magnetic Resonance Imaging, (MRI) we can see how and where beta waves are decreasing the most. This is indicated by the colour changes in the image below.

**The following areas of the brain were affected by meditation and relaxation in different ways.**

### **Frontal lobe**

This is the most highly evolved part of the brain, responsible for reasoning, planning, emotions and self-conscious awareness. During meditation and relaxation, the frontal cortex tends to go offline.

### **Parietal lobe**

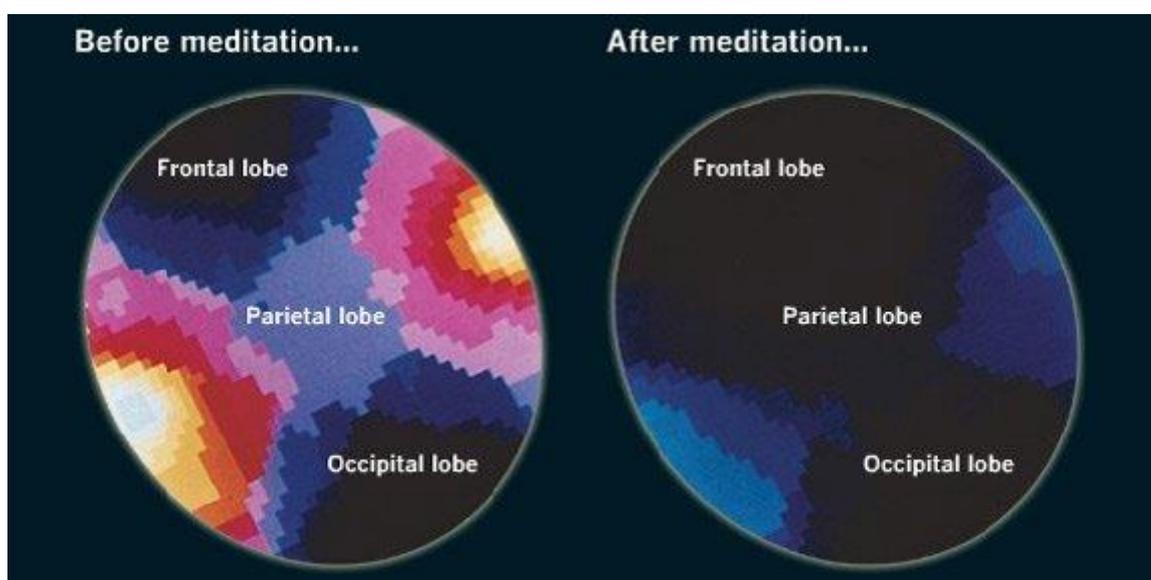
This part of the brain processes sensory information about the surrounding world, orienting you in time and space. During meditation and relaxation, activity in the parietal lobe slows down.

### **Thalamus**

The gatekeeper for the senses, this organ focuses your attention by funnelling some sensory data deeper into the brain and stopping other signals in their tracks. Meditation and deep relaxation reduces the flow of incoming information to a trickle.

### **Reticular formation**

As the brain's sentry, this structure receives incoming stimuli and puts the brain on alert, ready to respond. Meditation and deep relaxation dials back the arousal signal.



## **Summary of Brainwaves Experienced during Meditation & Deep Relaxation**

### **Mid to Low Beta (20Hz – 12Hz)**

**Experience:** Alertness, Focus, Concentration

**Helpful For:** ADD/ADHD, SAD, CFS (Chronic Fatigue Syndrome), Nervousness, Depression and Anxiety

**Neurotransmitters/Hormones:** Dopamine

Associated with worry, stress, paranoia, fear, irritability, moodiness, anger. Connected to weakened health and immune system. Fully awake and alert. People spend most of their time in the beta state.

### **Alpha (12Hz – 8Hz)**

**Experience:** Peaceful, Relaxed, Daydream

**Helpful For:** Habits, fears, and phobias. Tranquillity and Calm, Relaxation, Meditation, Anxiety, Stress, Panic, Focus, Effortless creativity flows. Powerful state for memory and super-learning. A harmonious, peaceful state.

**Neurotransmitters/Hormones:** Serotonin, Endorphins

Serotonin increases relaxation and eases pain

### **Theta (7.9Hz – 4Hz/ 7.83Hz – Schumann Resonance)**

**Experience:** Calm, Meditative, Physically Relaxed, Sleepy, Deeply Relaxed, (REM stage sleep).

**Helpful For:** Deep Meditation, Insight, Creativity, Immune System, EMF resistance, Insomnia, Insight, intuition, inspiration. Answers to important questions can be found. Feels like you are floating. A wonderful realm to explore. Dream like imagery. Good for problem solving. Feel more connected to others.

**Neurotransmitters/Hormones:** GABA, Serotonin, Acetylcholine, Anti-Cortisol, Endorphins, Human Growth Hormone. Catecholamines are vital for memory and learning, respond at around 4Hz (theta).

### **Delta (3.9Hz - .2Hz)**

**Experience:** Deep Rest/Sleep (dreamless), Deeply Meditative (greatly reduced thought)

**Helpful For:** Deepest Meditation, Sleep, Renewal, healing, rejuvenation. Deep, dreamless sleep. Very rewarding. Said to be the entrance to non-physical states of reality. Best state for immune system function, restoration, and health.

**Neurotransmitters/Hormones:** Human Growth Hormone, Melatonin

### **Neuro-theology**

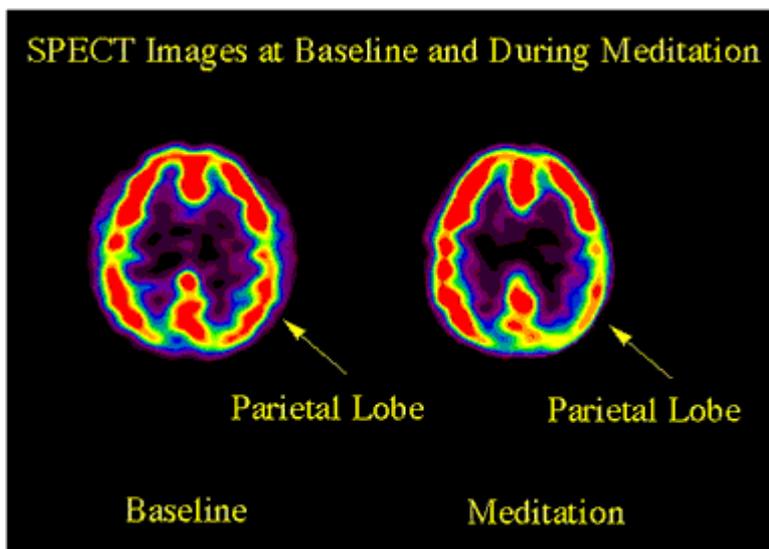
Neuro-theology is the name given by scientists around the world to better understand spiritual experiences, measure them, and even reproduce them.

Andrew Newberg, a Philadelphia scientist did an experiment which consisted of taking brain scans of Tibetan Buddhist meditators as they sat immersed in contemplation. After giving them time to sink into a deep meditative trance, he injected them with a radioactive dye. Patterns of the dye's residues in the brain were later converted into images.

Newberg found that certain areas of the brain were altered during deep meditation. Predictably, these included areas in the front of the brain that are involved in concentration. But Newberg also found decreased activity in the parietal lobe, one of the parts of the brain that helps orient a person in three-dimensional space.

“When people have spiritual experiences they feel they become one with the universe and lose their sense of self,” he said. “We think that may be because of what is happening in that area - if you block that area you lose that boundary between the self and the rest of the world. In doing so you ultimately wind up in a universal state.”

The term Superconscious Mind stands for One Mind - for universal consciousness, for totality of all knowledge, information and power - called by various names The Infinite Mind, The Universal Mind, Source, Divine Mind, Light, God Mind, or simply God. It is this infinite three-dimensional space that may be accessed in deep meditation and deep relaxation.



SPECT (single photon emission computed tomography) imaging allows to image the brain and determine which areas are active by measuring blood flow. The more blood flow an area has, the more active it is. The image above shows the results from a baseline scan on the left (i.e. at rest) and during a “peak” of meditation and deep relaxation shown on the right.

The image on the left shows that the front part of the brain, which is usually involved in focusing attention and concentration, is more active during meditation. This makes sense since meditation and deep relaxation requires a high degree of concentration. The image on the right shows that there is decreased activity in the parietal lobe. This area of the brain is responsible for giving us a sense of our orientation in space and time. Drs d’Aquilli and Newberg

hypothesised that blocking all sensory and cognitive input into this area during meditation and relaxation results in the sense of no space and no time which is so often described in meditation and deep relaxation.

## **Summary**

- In general the majority of the western world experiences a high level of Beta waves during their day.
- Vitali-Chi helps the individual to quickly and effectively alter their brainwaves to nurturing, health enhancing, Theta waves, thus lowering cortisol levels (one of the factors of aging). Alpha waves (relaxed but alert), continue well after the practice of a Relax session.
- It also helps to connect our left and right “brains”, and as such enables greater problem solving skills and enhanced study powers.

## **AROMAFREQUENCIES** <https://vitali-chi.co/collections/aromafrequencies>

Unique blends of 100% pure essential oils infused with natural healing properties. Together they help to revitalise your energy. ETC. ETC.

## **SEE RELAX SESSION AROMAFREQUENCY & PRODUCT CHART**

## **VITALI-CHI RELAX AFTER CARE**

A RELAX session is an important step to healing your mind, body and soul. Please continue to look after yourself to speed the healing process and to assist healing and relaxation at your next session.

- Drink plenty of water: this is really important to help your body continue the healing process even after the RELAX session.
- Eat healthful food: this includes regular servings of vegetables and raw foods.
- Reduce, or if possible avoid completely, junk and fast food.
- Limit caffeine, alcohol and smoking. Any reduction is better than not reducing at all.
- Exercise regularly. This includes walking, swimming, cycling and gardening.
- Reduce / avoid additives. We suggest reading food labels, if you do not recognise what the ingredient is, it is quite possibly not natural and should be avoided.
- Take time with nature.
- Spend time with people you love and make you feel loved.
- Do things that make you feel happy.
- Enjoy your creativity.
- Be kind to yourself – you are amazing.
- Be positive with affirmations. When you are feeling low, think of positive things in your life that you are grateful for.

*What results might I see over time with a RELAX session?*

- Muscle relaxation – as it balances, relaxes and energises the entire system
- Accelerated wellbeing
- Improved sleep patterns
- Calming and de-stressing of the nervous system
- Increased mental clarity

*Will I experience any detoxification symptoms?*

Some people may experience a mild release of toxins from the body within 24 hours after a RELAX session. This should be viewed as a positive effect as deep relaxation and the movement of energy allow toxins to move out of the body's cells. If at any time you are concerned, please contact your Relax Leader.