

The Science and Practice of Meditation



Richard Horowitz, MD



Table of Contents

Introduction.....	3
Studying Meditation and Medicine	3
On the Mahamudra Meditation Path	4
The Buddhist View of the Mind	5
The Eight Levels of Consciousness.....	6
Existence and Suffering in Buddhism	7
The Science behind Meditation	9
The Meditation Process	12
Proper Motivation	12
Calm-Abiding Purpose.....	14
Non-Attachment.....	15
Post Meditation	16
Meditation Guidance	16
Tips to Settle an Agitated Mind	18
Tips to Brighten a Dull, Tired Mind	18
Moving from Calm-Abiding to Insight Meditation	18
Post Meditation: Reaping the Benefits	19
Conclusion.....	20
Biography.....	22

Introduction

Over the past 50 years, ancient meditation traditions rooted in Asia have taken a foothold in modern Western culture. A variety of meditation techniques and concepts have spread through greater global communication by way of political upheaval and, of course, through popular culture – from the Beatles to Oprah. Even mainstream medicine has started to take note. Mindfulness meditation centers are now popping up in hospitals and clinics across the United States. Serious scientific studies are investigating the mental, physical and palliative benefits that meditation can offer patients.

Although Dr. Richard Horowitz is most known for his work in Lyme disease and tick-borne disorders, he has also been a student of meditation since the beginning of his medical career. Dr. Horowitz has spent more than 30 years practicing Tibetan Buddhist meditation and has found ways to incorporate its benefits into his medical practice. For the benefit of other healthcare practitioners, Dr. Horowitz has outlined various methods that can be used to start practicing mindfulness techniques, the Buddhist philosophical reasoning behind these techniques, scientific studies on the benefits of mindfulness, and a number of ways to incorporate the benefits of meditation into a daily routine with your patients.

Studying Meditation and Medicine

Dr. Horowitz first came upon meditation in 1978 during medical school in Brussels, Belgium. His first courses were in transcendental meditation and he quickly saw the benefits of meditation as he experienced much less stress in his life than his cohorts, despite the cutthroat competition within their medical school. Later in his training, Dr. Horowitz tried “The Transcendental Meditation Sidhi Program,” an advanced form of meditation working with yoga sutras of Patanjali. The goal of this program is for each participant to work within their own mind to discover its true strength.



Figure 1: Dr. Horowitz, right, and his teacher

Traditionally, Tibetan meditation had been taught via three-year long retreats, however, following the 1940s violence in Tibet, the lamas decided to bring the teachings to the masses at centers outside of the country. In 1981, a friend introduced Dr. Horowitz to a meditation center in Brussels where Tibetan lamas taught a different technique. Dr. Horowitz first met and studied under Lama Ganden Rinpoche in Brussels and has since studied under various lamas in both Europe and the U.S. all while simultaneously pursuing his medical career.

On the Mahamudra Meditation Path

There are four lineages, or schools, of Tibetan Buddhism: the Nyingma lineage, the Sakya lineage, the Gelug lineage, and the Kagyu lineage. The Kagyu lineage stems from a lineage of yogis, the most famous of which is Milarepa, who attained enlightenment during a single lifetime. Within the Kagyu lineage, there exist three levels: Hinayana, Mahayana, and Vajrayana.

The last of these levels, Vajrayana is very much in line with the professional motivations of doctors, nurses and most healthcare practitioners as its primary motivation is to reach enlightenment for the sake of helping others who suffer.

The Buddhist View of the Mind

The Buddhist view of the mind is an integral part of understanding meditation techniques. According the Tibetan Buddhist tradition, what is generally understood to be life, is actually an illusion or a dream. In the same vein, there is no object or tangible thing called a mind.

A Buddhist may ask the question, "*Have you ever seen your thoughts?*" or "*Has anyone ever seen their mind?*" However, according to their own understanding, neither the mind nor thoughts have either color or form.



Figure 2

According to Buddhist tradition, it is held that human beings develop a dualistic perception, which means that everything is seen in terms of opposites: good or bad,

happy or sad, man or woman, life or death. Embedded in that dualistic perception is a subject/object split - there is a "me" and there is a "you." On another level, an individual can transcend dualistic perception to arrive at a unified state.

Larry Dossey, MD, a well-respected physician, is deeply rooted in the scientific and is also an internationally recognized advocate of the role of the mind in health and the role of spirituality in healthcare. Dr. Dossey has described three periods, or eras, through which medicine has advanced since the later part of the 19th century. According to Dr. Dossey, Era I represents physical or mechanical medicine, which includes surgical procedures such as when a patient needs a gallbladder removed. Era II represents mind-body medicine, which can be seen when an individual experiences mental shock and their body reacts with cytokines, cortisol and a sympathetic nervous system response. Era III represents the non-local, unlimited potential that goes beyond what a single doctor can do in medicine; it is what some might call Buddha-hood, God-mind, or Christ consciousness. Words cannot appropriately describe Era III because words are relative and God-mind is absolute. However, according to Buddhist teachings, it can be seen through meditation.

The Eight Levels of Consciousness

Buddhist lamas describe consciousness as constituting eight levels. The first five levels of consciousness are the senses, which include the eye consciousness that sees, the ear consciousness that hears, the smell consciousness that smells, the taste consciousness, and the sense consciousness. These five levels of consciousness are considered non-conceptual. For example, the eye consciousness sees, but does not judge what it sees; it just sees.

The sixth level of consciousness is the mental consciousness, and it is what we use to meditate and examine our own mind. The seventh level of consciousness is the afflicted consciousness, which clings to a belief in a self.

The eighth, and final, level of consciousness is called the alaya, or ground

consciousness. This is the level of consciousness that is defined by cognitive clarity. When an individual is meditating and has an awareness that is awake and is bright, that is the cognitive clarity of the eighth level of consciousness, or the alaya.

Emptiness is another important concept in Buddhist meditation. Emptiness is the second turning of the wheel of dharma (selflessness is the first). Emptiness means that everything is interdependent and that things are not necessarily separate. Take, for example, two bottles of different volumes in which the first bottle, bottle A, is bigger than bottle B. If bottle A is removed from view and a third, smaller bottle C is brought into view, bottle B no longer appears to be smaller and, instead, has become the bigger of the two visible bottles. This is a visualization of how there was nothing intrinsic to bottle B as a thing that could define it as small or big. Everything is interdependent.

Another example would be to visualize a chair underneath a person. Chairs are not solid, nor are human bodies solid. They are both a collection of atoms and molecules turning through space. A chair on the level of atoms is 99.999 percent space and therefore not solid and completely interdependent. That is relative reality.

The concept of emptiness, or “empty nature,” is central to the point of view that things have no substantial reality. A mind has no color or form, and so it is not a thing in the same sense as the bottles in the previous example. And yet, the mind does exist because, as an individual, the individual is aware. In this way, the ultimate truth is that the mind is someplace between existence and nonexistence. The mind is also part of a great interdependence, which means it is full and has great potential at the same time.

Existence and Suffering in Buddhism

According to Tibetan Buddhist tradition, there are six realms of existence and the realm that one enters at birth is based on whether the individual previously held onto anger, greed, ignorance, desire, jealousy or pride. The human realm is the realm of

desire: the desire to achieve things that will make us happy. According to teachings, the human realm is the only realm in which one can reach enlightenment. Therefore, becoming human is actually a very rare, precious rebirth.

Buddhism teaches that everything is impermanent; nothing stays the same, everything changes and we are uncomfortable with this change. Impermanence is the law of the universe - relative reality changes constantly. What doesn't change, however, is the ultimate nature of an individual. A person's ultimate nature is loving, compassionate, kind, joyful, and complete with transcendental wisdom. Buddhism teaches its followers to have no fear, even in the face of death.

Doctors, nurses, and other healthcare practitioners aim to save lives and eliminate suffering whenever possible, which is accomplished most often through proper diagnosis, but can also be achieved through therapy referrals for patients who may require emotional support. With this in mind, it is worth examining the ego, which is the Buddhist explanation of suffering.

If one examines suffering, there is always the "I" embedded within the experience - *I suffer* or *I have pain*. This concept is not a genuine awareness, but rather an ego attachment and self-cherishing. In truly examining the nature of pain, there is not truly an "I" in the sprained ankle or in the bad knee, but rather there is an awareness of the knee and an awareness of the pain.

It is for these reasons that one must approach meditation without an ego in order to relieve suffering in oneself and in others. Possessing the proper motivation for meditation is crucial. If someone is meditating for the sake of another, their ego will have been pushed out of the way from the very beginning.

It is important to first reach a state of wisdom in order to then relieve suffering in others. While healthcare practitioners must still develop an analytical, "left-brain" to absorb information, meditation will help them to also develop a wise, "right brain" to

ease suffering.

The Science behind Meditation

Although the Mahamudra tradition of Tibetan Buddhism is less well-studied, other forms of mindful meditation have been studied in regards to physical and physiological responses.

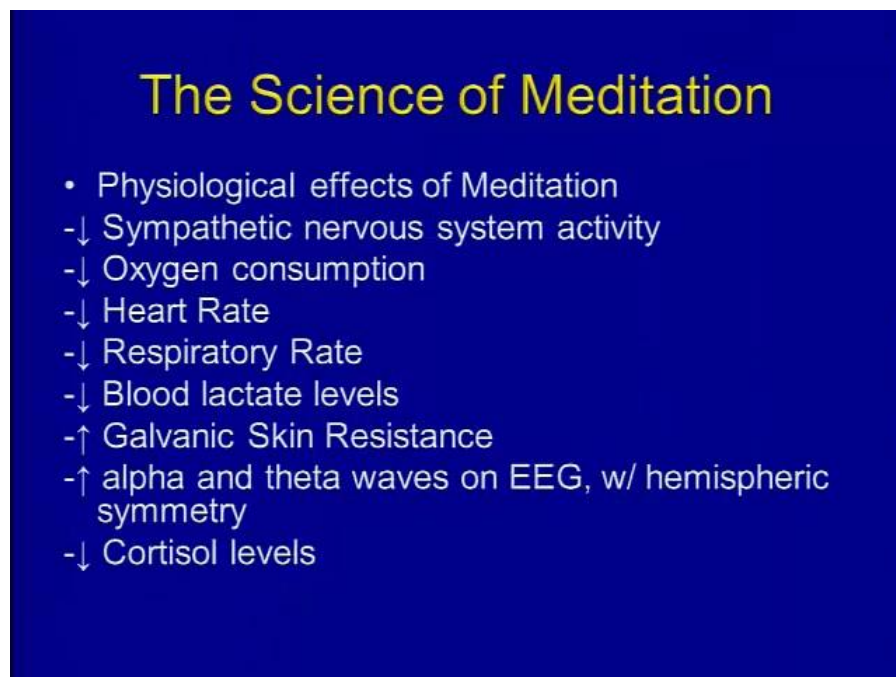


Figure 3

Brain scans have shown that meditation alters the brain's functioning in several ways. According to some older, physiological studies, meditation has been shown to alter the wake state. There are normally three waking states: awake, non-REM sleep and REM sleep. Yet studies have shown that people in deep transcendental meditation appear to be in a fourth state in which they are very awake, but also very calm.

The meditative state has also been shown to have various physiological markers other than REM sleep, non-REM sleep, and normal wakefulness including:

- Different EEG readings and cortisol levels
- Increased intensity of the slow alfa waves in the prefrontal cortex
- Lower oxygen consumption
- Decreased blood lactate levels
- Increased galvanic skin resistance
- Stable blood pressure
- Drop in respiratory rate

Additionally, individuals that undergo transcendental meditation have symmetry in activity between both sides of the brain, which would normally not occur in other waking states.

Research studies of mindfulness meditation have uncovered a host of emotional and mental health benefits. Mindfulness may:

- Help short-term and long-term relief from chronic pain
- Help mood disorders, especially with decreasing anxiety
- Lower steroid levels and sympathetic nervous system activity
- Improve general health and quality of life

While many of these detected physiological benefits are accrued during meditation, more studies are needed to demonstrate that the positive effects are maintained when the meditation has ended. However, it is difficult to run long-term, assigned, controlled meditation studies and, without this control, it is difficult to know whether those who freely choose to meditate have pre-existing health and personality differences that make meditation more likely to work for them.

There are, however, some controlled studies of the benefits of mindfulness in the treatment of substance abuse. These studies have found the following:

- Decreased cravings

- Better results quitting alcohol
- Better results quitting tobacco

One controlled, randomized relapse prevention study of 168 participants found that mindfulness helped people stay off of both drugs and alcohol. Studies have also documented physiological changes associated with meditation in terms of better immune responses to a flu vaccine, lower cytokine levels, and changes in the brain such as left brain anterior activation.

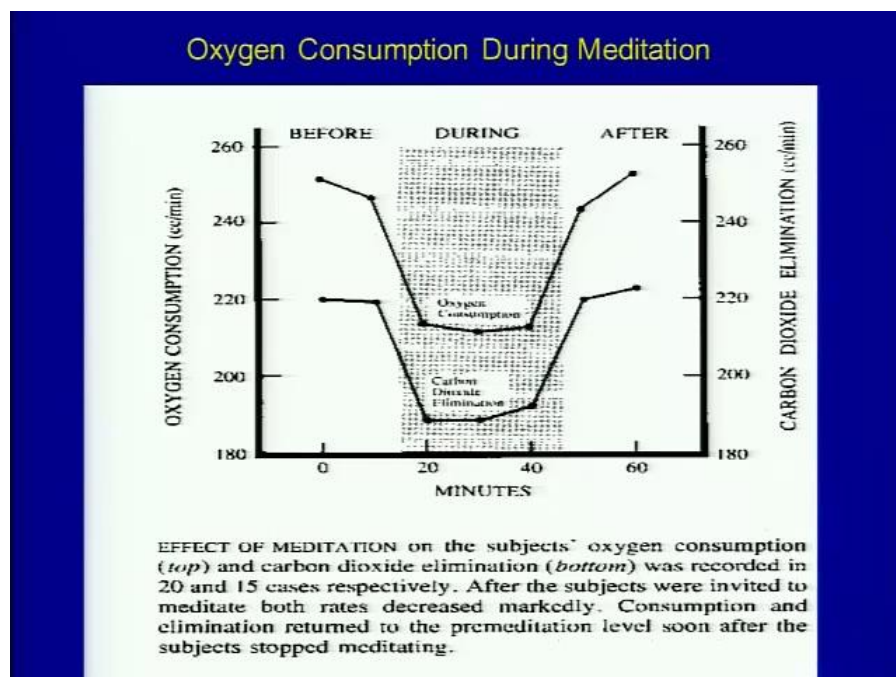


Figure 4

Inflammation drives a large number of chronic conditions such as chronic fatigue, fibromyalgia, and autoimmune disorders. Inflammation is also a contributor to cardiovascular problems including heart attacks and strokes. Studies have found that individuals who participate in mindfulness meditation are better at combating stress and stress-induced inflammation.

The Meditation Process

Proper Motivation

Before beginning any meditation practice, lamas teach that one must possess the proper motivation of love and compassion for others. According to the Mahamudra tradition, while attempting meditation with other motivations will likely generate a few physiological benefits, proper motivation is the key to attaining the full benefits of meditation.



“Happiness cannot be found through great effort and willpower, but is already present in open relaxation and letting go.”

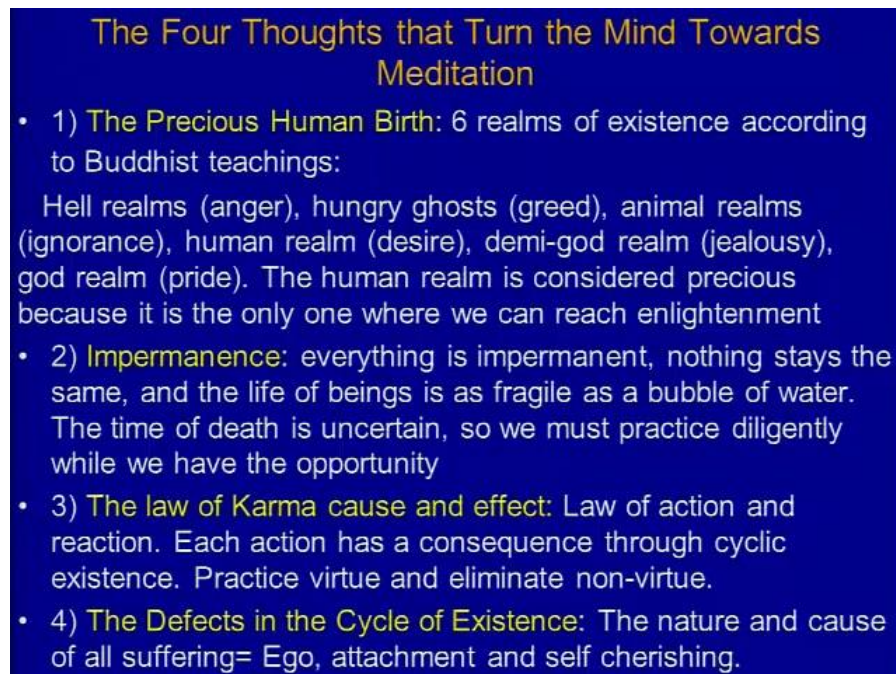
Venerable Gendun Rinpoche

Figure 5

Buddhists describe love as the desire for others to be happy, and describe compassion as the desire for others to be free from suffering. Thus, proper motivation for meditation is timeless and limitless compassion, or Bodhicitta. Bodhicitta represents the energy source that occurs during meditation. The universal compassion in Bodhicitta is found in holy people and mystics from various religious backgrounds around the world.

Another description for this compassion is characterized by *tonglen*, or the taking and sending of compassion. In the healthcare setting, an example of tonglen would be the visualization of a patient's illness as a black smoke that can be breathed in and dissolved into white light and then breathed out to the patient. Developing limitless compassion is also represented by a Bodhisattva – a vessel used to bring sustenance and relief for sentient beings.

A first step towards the development of this compassionate motivation is the creation of an aspirational prayer to help you from becoming overwhelmed. Overall, have faith and trust in yourself – not in your ego, but in your divine essence and primordial wisdom. Have confidence that the truth you search is nowhere but within. A person doesn't become enlightened - they simply recognize what is already present.



The Four Thoughts that Turn the Mind Towards Meditation

- 1) **The Precious Human Birth:** 6 realms of existence according to Buddhist teachings:
Hell realms (anger), hungry ghosts (greed), animal realms (ignorance), human realm (desire), demi-god realm (jealousy), god realm (pride). The human realm is considered precious because it is the only one where we can reach enlightenment
- 2) **Impermanence:** everything is impermanent, nothing stays the same, and the life of beings is as fragile as a bubble of water. The time of death is uncertain, so we must practice diligently while we have the opportunity
- 3) **The law of Karma cause and effect:** Law of action and reaction. Each action has a consequence through cyclic existence. Practice virtue and eliminate non-virtue.
- 4) **The Defects in the Cycle of Existence:** The nature and cause of all suffering= Ego, attachment and self cherishing.

Figure 6

In order to turn the mind towards meditation, lamas teach their students to reflect upon The Four Thoughts:

- The precious human birth
- The impermanence of the world
- Karma's cause and effect
- The ego, and the suffering of samsara (cycle of death and rebirth)

Calm-Abiding Purpose

After reflection, one can begin the Samatha, or calm abiding meditation. Buddhism teaches that we all have a nature that is full of peace, joy, health, love, compassion, and transcendental wisdom. Still, while this is part of our nature, it has been covered up.

Imagine your mind is the sun and you have to remove the clouds blocking its light. The goal is to arrive at a calm state with clarity of mind and without cognitive thoughts bubbling up and blocking the light. Often during meditation, the thoughts first flow like a waterfall, then slow down to a stream, and finally become so still that the mind becomes a calm, clear and pond.

Samatha is meant to help clear the clouds of the mind through non-effort and relaxation, which means no judgments, concepts, or thoughts. If you can relax your mind into its essential nature, you will automatically be meditating.

When meditating, it is helpful to sit in the traditional seven-point posture. A common starting point in calm-abiding meditation is focus on an object. Focus the mind on an object, but do not follow with thoughts of the past or the future. Keep the mind in one place in an open, relaxed manner.

Samatha/ Calm Abiding Meditation

- Contemplate the 4 thoughts that turn the mind towards meditation
- Proper motivation: Bodhichitta and Aspiration prayers
- Proper posture
- Choose an object (breath, picture..)
- Essential Instructions: Don't follow thoughts of the past, present, or future
- What to do when drowsy or agitated
- Key elements: Non-distraction, Non-conception, Non-Meditation
- Not too tight, not too loose
- Short quick sessions initially : 5-10 min's 3x/day
- Dedication of Merit

Figure 7

Non-Attachment

Whatever does arise in the mind during meditation is impermanent, and therefore not worthy of thought or attachment. Don't identify with the thoughts that arise. Don't judge them. Don't attach to it. Ultimately, things in this world are impermanent and fall away. It would be like attaching yourself to weather or to a rainbow.

The ultimate goal is to become a spectator. Let the good and bad experiences in the world rise and fall like waves in the ocean. They are as ephemeral as weather and rainbows. Peace and happiness do exist, but not as an actual thing or place – they are always present and accompany us in every instance.

Once the mind is calm, still, and stable it is time to participate in Vipassana, or insight meditation. Throughout insight meditation, the meditating individual reflects on questions in an effort to understand the true nature of their mind which, like everything, is actually empty. The individual may examine questions like: Where do

thoughts come from? Where do they go? Where do they abide? Where do they stay? Through insight meditation, one begins to understand the empty nature of mind.

Post Meditation

In post meditation, the goal is to keep your mindfulness, awareness, and watchfulness honed in meditation. Some attention stays inward, focused on the nature of your mind and thoughts, while some attention moves outward.

Meditation Guidance

There are plenty of tips to guide a person through meditation – both practical and inspirational. After reflecting on The Four Thoughts, and reciting an aspirational prayer, it is important to find a comfortable, and accurate, seven-point posture.

There are several variations on the meditation posture. Not everyone can do a full lotus position, but there are variations in half lotus positions, or even sitting in chair. There are also two variations on the position of the hands and arms: the gesture of equanimity, and the gesture of ease. Whatever the variation, your gaze should be outward.

Samatha /Calm Abiding Meditation

- **Proper posture: The 7 point posture of Vairocana.**
 - 1) Sit with the legs in the vajra posture, or loosely crossed sattva posture (crossed legged on a cushion).
 - 2) Position of the arms and hands: hands are folded on the lap with the right hand resting in the left (“gesture of equanimity”), or hands are placed on the knees, the fingers extended towards the ground (“the gesture of ease”)
 - 3) Sit with the back straight and upright (chair or cushion). This allows the energies in the subtle channels to flow more freely and straight, allowing the mind and attention to remain at ease
 - 4) Extend the shoulders and elbows until they too are straight
 - 5) Slightly tilt the neck, and tuck the chin in slightly
 - 6) Connect the tip of the tongue to the palate
 - 7) Eyes: gaze towards the tip of the nose (45 degrees downward)**Important: Be free and easy and deeply relaxed with the posture!**

Figure 8

Another key element in meditation is non-distraction, meaning one has to commit to the idea that you don't follow the thoughts that arise. It's also best not to push too hard, or be too loose, with the concentration following breaths. It often works best to try short, quick session of five minutes.

Machig Labdron, the female enlightened master who founded the Chod system of Buddhism, recommended three key points: Be at ease with your mind, be at ease with your body, and be at ease with your speech (if you are singing in meditation).

Another point to remember is that non-attachment is the feed of meditation. To fully renounce all attachments in life is very difficult for most people, but it is absolutely necessary in order to reach enlightenment. Even if an individual does not reach a state of enlightenment, meditation will convey many physiological benefits. One way to think of meditation is that devotion is the head of meditation, while mindfulness and awareness are the body.

An easy guide through meditation is to start by focusing either on an object or on your breath. Choose an object and watch it, or watch your breathing go in and out, perhaps counting each breath. At the same time, don't follow any thoughts that arise. Maintain mindfulness and awareness of what is happening, maintain proper motivation, and maintain proper posture.

Once the mind is calm, you can attempt calm-abiding meditation without an object where you reflect on your own mind rather than an object: use your awareness to be aware of your own awareness.

Once we reflect on our own mind, we see the nature of thought is clarity and emptiness. There is a clear experience of awareness that is always present, but when we examine the mind, we notice it is empty. It has no color and no form.

Tips to Settle an Agitated Mind

People often find their mind is overly active and agitated during meditation. One technique that is used to settle an agitated mind is accomplished by making a commitment to cut thoughts at their root; this means that one is committed to avoid chasing any thoughts that arise, no matter how interesting they may be.

Another technique is visualization. Imagine at the center of your heart there is a black, upside down lotus with four petals at the level of your heart. In the center of this lotus is a black sphere of light that represents your consciousness. Visualize this black sphere of light slowly going down through your body and into the earth. Hold that visualization of this black sphere, which is heavy and dark.

Tips to Brighten a Dull, Tired Mind

Meditation requires a bright awareness. If you feel tired or distracted, a good tip is to straighten your posture. Instead of visualizing the lotus with the black sphere of light, visualize a brighter image. This time it's a white lotus at the center of the heart, with a white sphere of light in its center. Visualize this white sphere of light ejecting through the top of your head into space. Then visualize this very small sphere of pea-sized white light into space, brightly radiating.

Moving from Calm-Abiding to Insight Meditation

Once the mind is calm and stable, it's time to move to insight meditation. This type of meditation requires participants to bring up a new thought, a question, or an emotion for every session. The thought of fear can be very helpful for an anxious person during insight meditation. When the fear arises, it is important not to run from the fear, but instead to focus on the breath and turn towards the fear and look at it. If the fear is real, one must ask the following: Where does it come from? Where does it go? Where does it abide? Does it have color? Does it have form? What people will it find?

Mahamudra Meditation: 3 Essential points

1. Non-Distraction
2. Non-Meditation
3. Non-Conception

Develop non-distraction through the practice of shamata/chinay meditation

Develop non-meditation through “no-effort”, resting in the open, relaxed, spacious awareness that is spontaneously present (there is nothing to do or undo..)

Develop non-conception through mindfulness and awareness, letting go of any concepts that arise. Rest in the fresh, direct experience in the present moment, not judging or grasping thoughts, or judging the meditation experience (non-duality)

Figure 9

Don't focus on the content of the thought, but rather focus on the nature of the thought or the emotion. That is what you do in Mahamudra insight meditation. But the most important part is recognizing the essence of the one who thinks. Everything that exists is produced and comes from mind. Happiness, suffering, birth, sickness, and death all come from the mind. There is nothing that is outside of or greater than the mind.

When the mind recognizes itself, what is realized is that primordial wisdom, which cannot be experienced by our ordinary dualistic minds. All of the teachings of Buddha are meant to allow the mind to recognize itself.

Post Meditation: Reaping the Benefits

Post-meditation is an important part of the meditation process. After meditation, it is important to pay attention to what you hear and see, but also to apply watchfulness and remain aware of what the mind is doing. If a virtuous thought arises, recognize

it as virtuous. If a negative thought arises, recognize it as negative. In this way, stay grounded in your physical body and aware of what you are experiencing. Don't try to stop thoughts in post meditation, but also don't drift in them aimlessly.

While on the path of meditation, people can still experience new suffering. Past karma can “ripen”; the body may fall sick and have pain; the mind may feel sorrow or joy.

The key to dealing with this affliction is to recognize its true essence. Both sorrow and joy are simply thoughts and indulging in either will serve to accumulate karma. Indulging in joy may increase clinging, sorrow, hatred or aversion and so the best remedy is to immediately recognize it and relax rather than becoming overcome by it.

The same can be said for illness. Don't indulge it, but instead look at the nature of the painful sensation. In both cases, it is important to avoid blocking or encourage one over the other. Instead, simply recognize and examine the essence. Emotion is naturally pacified and then transforms into wisdom when we see its essence. In this way, afflictions can be used for wisdom.

Conclusion

In the last few decades, the ancient practice of meditation has quickly proven its benefits to Western medicine. People who regularly practice meditation have unique EEG patterns, lower respiratory rates, stable blood pressure, and better immune responses. Controlled studies have shown that mindfulness meditation can help those battling anxiety, depression, substance abuse, and addiction.

Understanding the purpose and motivation for meditation within the ancient traditions that developed is crucial to truly getting the most out of meditation. According to the Tibetan Buddhist tradition, meditation is to be done for the benefit of others. Just as healthcare practitioners study medicine to relief suffering, so too

should they undertake compassion for others in meditation. Mindfulness exercises may be particularly helpful for healthcare practitioners by reducing errors and burnout through maintaining a focused, calm mindset and increasing empathy.

Before meditation, it's useful to reflect on The Four Thoughts: the precious human body; the impermanence of everything; the cause and effect of karma; and the ultimate cause of suffering - the ego. Meditation can facilitate the realization that emotions and thoughts have no color and form, which can, in turn, lead to greater clarity and insight and also reduce anxiety and depression.

Biography

Dr. Richard Horowitz is a board certified internist in private practice in Hyde Park, N.Y. He is also the medical director of the Hudson Valley Healing Arts Center, an integrative medical center which combines both classical and complementary approaches in the treatment of Lyme disease and other tick-borne disorders. Dr. Horowitz is the former Assistant Director of Medicine of Vassar Brothers Hospital in Poughkeepsie, N.Y., and is one of the founding members and past president elect of ILADS, the International Lyme and Associated Diseases Society. His book "*Why Can't I Get Better? Solving the Mystery of Lyme and Chronic Disease*" was released in November 2013.