



# Meditation

An overview of ideas, practices and current research

# Contents

- Intro
- A part of Contemporary Culture
- Definition
- How practitioners describe it
- Types of Meditation
- Levels of Consciousness
- The Great Nest of Being
- Academic Research
- Meditation and the Brain
- Summary of academic research on meditation

# Intro

“Meditation is among the most common and most highly perfected of the techniques of the traditional psychologies. Such techniques have been employed in almost every culture from that of ancient Egypt to that of the contemporary Eskimo.”

Robert Ornstein

# A part of contemporary culture.

“Meditation has infiltrated our culture. Millions have tried meditation and many have incorporated it into their lives. Meditation is now a standard tool in medicine, psychology, education and self-development. In addition, there are many old hands who are now well into their second decade as meditators. As these meditators have taken their place in the ranks of business people, professionals and academics, they have made meditation part of the fabric of the culture. People meditate at work to enhance their effectiveness, psychotherapists and physicians teach it to their patients, and graduate students write theses about it.”

Daniel Goleman.

Author of “Emotional Intelligence”

## Number of Google articles on;

9,980 000 - contemplation

44,400 000 - meditation

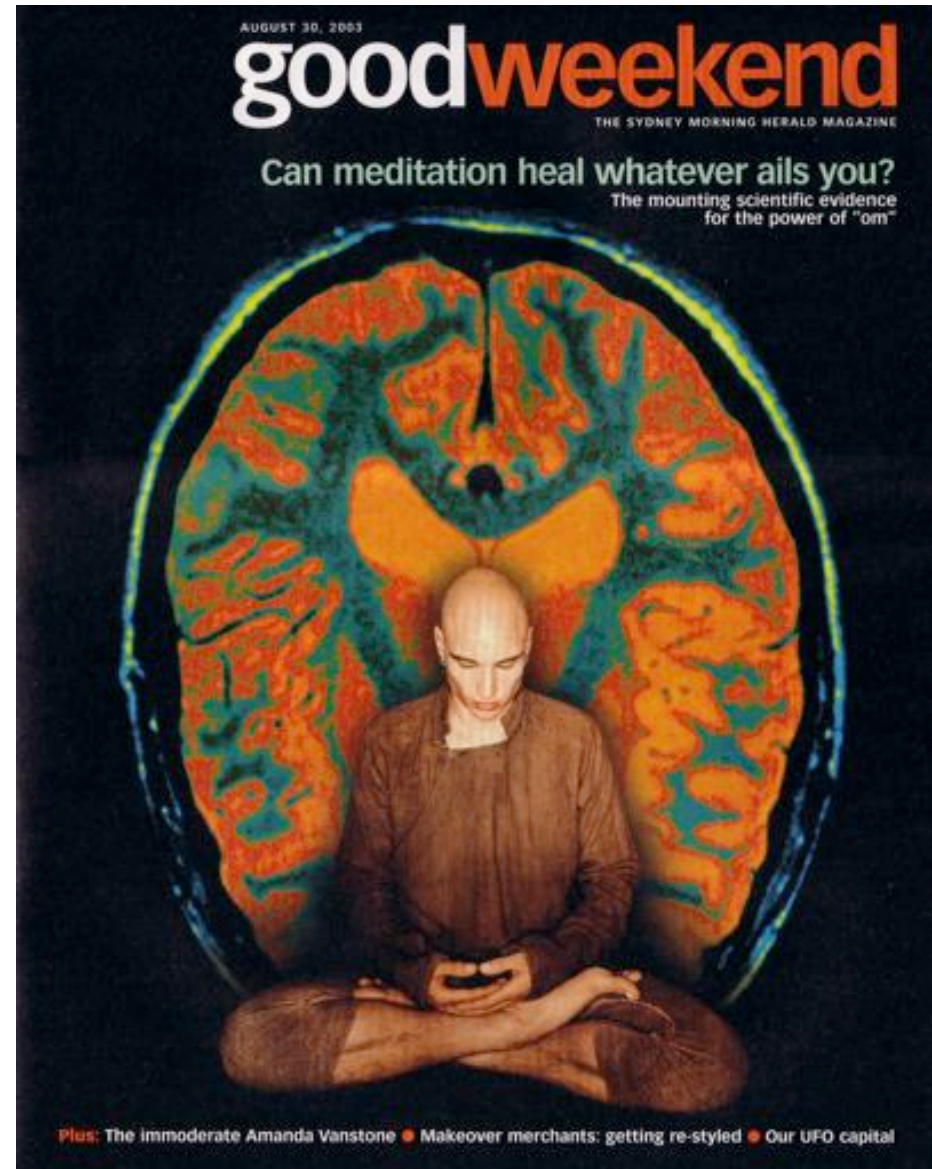
234,000 000 - politics

265,000 000 - religion

398,000 000 - sex

622,000 000 - money

1,250,000 000 - internet



# Dictionary definition

- continuous and profound contemplation or musing on a subject of a deep nature
- A devotional exercise of or leading to contemplation.
- A contemplative discourse, usually on a religious or philosophical subject.
- ‘a state of single-minded concentration upon some particular thing’ Oxford Dictionary
- ‘an act of deep continued thought, solemn reflection on sacred matters as in a devotional act’. Webster’s New World Dictionary
- “Meditation describes a state of concentrated attention on some object of thought or awareness. It usually involves turning the attention inward to the mind itself. Meditation is often recognized as a component of Eastern religions, having originated in Vedic Hinduism. It has also become mainstream in Western culture. It encompasses any of a wide variety of spiritual practices which emphasize mental activity or quiescence. Meditation can be used for personal development, or to focus the mind on God (or the Gods). Many practice meditation in order to achieve peace, while others practice certain physical yogas in order to become healthier.” Wikipedia
- Often called contemplation in the west.
- the word meditation can be used in 3 different ways:
  - a technique or thing to practice
  - the time you are practicing the technique
  - a particular state of awareness experienced while practicing.

# How practitioners describe it;

- “The art of suspending verbal and symbolic thinking for a time, somewhat as a courteous audience will stop talking when a concert is about to happen.” Alan Watts. “The Book - On the Taboo Against Knowing Who You Are.”
- “...bringing the mind home” Sogyal Rinpoche. “*The Tibetan Book of Living and Dying.*”
- “Meditation must be used as a tool to come to the freedom beyond tools.”  
Jack Kornfield. Main proponent of Theraveda in US.
- “Meditation and relaxation are not one and the same; meditation is in essence, the effort to retrain attention. This gives meditation its unique cognitive effects, such as increasing the meditator’s concentration and empathy. The most common use of meditation, however, is as a quick-and-easy relaxation technique.” Daniel Goleman. “Emotional Intelligence.”
- "So, to meditate is to purge the mind of its self-centered activity. And if you have come this far in meditation, you will find there is silence, a total emptiness. The mind is uncontaminated by society; it is no longer subject to any influence, to the pressure of any desire. It is completely alone, and being alone, untouched it is innocent. Therefore there is a possibility for that which is timeless, eternal, to come into being. This whole process is meditation."  
“...not a means to an end. It is both a means and the end.” Krishnamurti
- "Meditation is not the same as concentration. Concentration consists in freeing the attention from objects of distraction and focusing it on one thing at a time. Meditation is that special form of concentration in which the attention has been liberated from restlessness and is focused on God. A man may concentrate on divinity or on money but he does not meditate on money or any material thing. Meditation is focused only on God or sacred thoughts and ideas." Paramahansa Yogananda
- “Another type of meditation involves looking at the mind itself. Try to leave your mind vividly in a natural state, without thinking of what happened in the past or of what you are planning for the future, without generating any conceptuality... With persistent practice, consciousness may eventually be perceived or felt as an entity of mere luminosity and knowing, to which anything is capable of appearing and which, when appropriate conditions arise, can be generated in the image of whatsoever object. As long as the mind does not encounter the external circumstance of conceptuality, it will abide empty without anything appearing in it, like clear water. Its very entity is that of mere experience. Let the mind flow of its own accord without conceptual overlay. Let the mind rest in its natural state, and observe it. In the beginning, when you are not used to this practice, it is quite difficult, but in time the mind appears like clear water. Then, stay with the unfabricated mind without allowing conceptions to be generated. In realizing this nature of the mind, we have for the first time located the object of observation of this internal type of meditation.”  
The Dalai Lama.

# Types of Meditation

- Transcend and include all objects of awareness. Some techniques emphasize transcendence/negation others inclusion.
- Single pointed/Focussed Awareness
- Open Mindfulness/Open Awareness
- Internal objects of concentration
- External objects of concentration



A Yantra can be used as a focus of attention



Method	External	Internal					
		Hear	Feel	See	Taste	Smell	Thought
<b>ONE POINTED MEDITATION</b>							
Breath counting		✓	✓				✓
Mantra (eg TM)		✓					
Visualization	✓			✓			
Focusing on one object	✓			✓			
Affirmations		✓	✓				✓
Koans		✓					✓
Tasting Awareness					✓		
<b>PHYSICAL MOVEMENT</b>							
Yoga, Tai Chi, Whirling			✓				
Chanting	✓	✓	✓				
Walking meditation			✓				
<b>OPEN MINDFULNESS MEDITATION</b>							
Vipassana/Sikyan-tan	✓	✓	✓	✓	✓	✓	✓
Pure Awareness	✓	✓	✓	✓	✓	✓	
Methodless Awareness	✓	✓	✓	✓	✓	✓	✓

Types of meditation techniques



Full lotus posture



Kneeling with a meditation bench



Butterfly posture



Sitting on a chair



Major Levels of Awareness



## Higher Levels of Consciousness -Fundamental Structures

- "...say that you have a powerful experience of cosmic consciousness, or a sense of being one with the entire manifest world. Now the deep pattern of that experience is quite similar no matter what culture it appears in--you can have this experience of oneness if you are Chinese, Indian, German, or Mexican, living now or a thousand years ago... But the actual contours, contexts, surface features, and specific meanings of that experience will usually vary from culture to culture and even from person to person... Likewise, the various waves (or stages) of consciousness that unfold in meditators show certain context-transcending similarities." (Wilber. 2004)
- "the stages of meditation are in fact 'real' - that is, they seem to represent demonstratable cognitive, perceptual, and affective changes that follow a developmental-stage model... [and] that the stages of meditation are in fact of cross-cultural and universal applicability."  
(Brown and Engler in Transformations of Consciousness. 1986)

# Levels of Consciousness

1. **Gross-waking states;** such as what I might experience riding a bike or reading this page.
2. **Subtle-dream states - savikalpa samadhi;** such as I might experience in a vivid dream, or in a vivid day-dream or visualization exercise, as well as in certain types of meditation with form.
3. **Causal-formless states - nirvikalpa samadhi - Pure Consciousness Event;** such as deep dreamless sleep and types of formless meditation - experiences of vast openness or emptiness, formless consciousness.
4. **Witnessing states - turiya - Dual Mystical state;** a capacity to 'witness' all of the other states or where formless consciousness is present with objects.
5. **Nondual awareness - turiyatita - Unitive Mystical State;** which is not so much a state as the ever-present ground of all states and can be experienced as such. Where consciousness & its objects are nondual. Subject and object feel undivided.

## Descriptions of Levels of Consciousness.

### Causal-formless states - nirvikalpa samadhi - Pure Consciousness Event.

"...the more completely you are able to draw in your powers to a unity and forget all those things and their images which you have absorbed, and the further you can get from creatures and their images, the nearer you are to this and the readier to receive it. If only you could suddenly be unaware of all things, then you could pass into an oblivion of your own body... memory no longer functioned, nor understanding, nor the senses, nor the powers that should function so as to govern and grace the body... In this way a man should flee his senses, turn his powers inward and sink into an oblivion of all things and himself." Meister Eckhart.

"During the short time the union lasts, she is deprived of every feeling, and even if she would, she could not think of any single thing... She is utterly dead to the things of the world... The natural action of all her faculties [are suspended]. She neither sees, hears, nor understands." William James quoting from St. Teresa of Avila, Interior Castle.

- **Witnessing states - turiya - Dual Mystical state..**

"However numerous were her trials and business worries, the essential part of her soul seemed never to move from its dwelling place. So in a sense she felt that her soul was divided . . . Sometimes she would say that it was doing nothing but enjoying itself in that quietness, while she herself was left with all her trials and occupations so that she could not keep it company"

St Teresa of Avila.

- "From that moment forward, I was silent inside. I don't mean I didn't think, but rather that the feeling inside of me was as if I was entirely empty, a perfect vacuum. Since that time all of my thinking, my sensations, my emotions, etc., have seemed not quite connected to me inside. It was and is as if what was me, my consciousness itself, was (and is) now this emptiness. The silence was now me, and the thoughts that have gone on inside have not felt quite in contact with what is really 'me,' this empty awareness. 'I' was now silent inside. My thinking has been as if on the outside of this silence without quite contacting it: When I saw, felt or heard something, that perception or thought has been seen by this silent consciousness, but it has not been quite connected to this interior silence." Robert Foreman. 1972.

- **Nondual awareness - turiyatita - Unitive Mystical State**

"He who has allowed the beauty of that world to penetrate his soul goes away no longer a mere observer. For the object perceived and the perceiving soul are *no longer two* things separated from one another, but the perceiving soul has [now] within itself the perceived object." (Plotinus's *First Ennead* (8:1). quoted in Otto, 1930, p. 67).

- "...while I was in that state and more conscious of the things around me, I had the first most extraordinary experience. There was a man mending the road; that man was myself; the pickaxe he held was myself; the very stone which he was breaking up was a part of me; the tender blade of grass was my very being, and the tree beside the man was myself. I also could feel and think like the road mender and I could feel the wind passing through the tree, and the little ant on the blade of grass I could feel. The birds, the dust and the very noise were a part of me. Just then there was a car passing by at some distance; I was the driver, the engine, and the tires; as the car went further away from me, I was going away from myself. I was in everything, or rather everything was in me, inanimate and animate, the mountain, the worm and all breathing things. All day long I remained in this happy condition. Krishnamurti. Aug, 1922:



Time of meditation is depth of experience

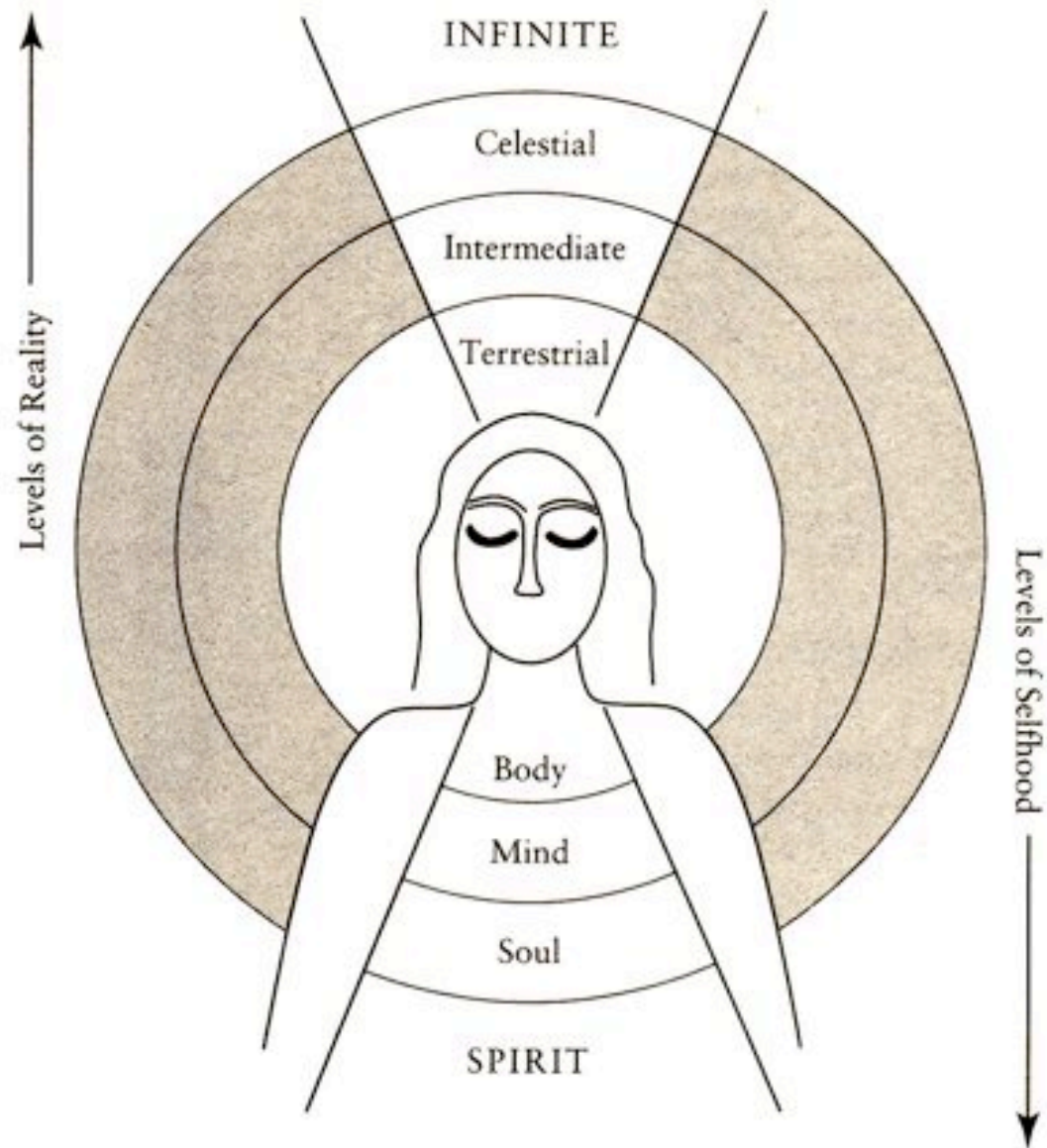


Figure 4-1. *The Great Nest of Being*. Adapted by permission from Huston Smith, *Forgotten Truth: The Common Vision of the World's Religions* (San Francisco: HarperSanFrancisco, 1992, p. 62)

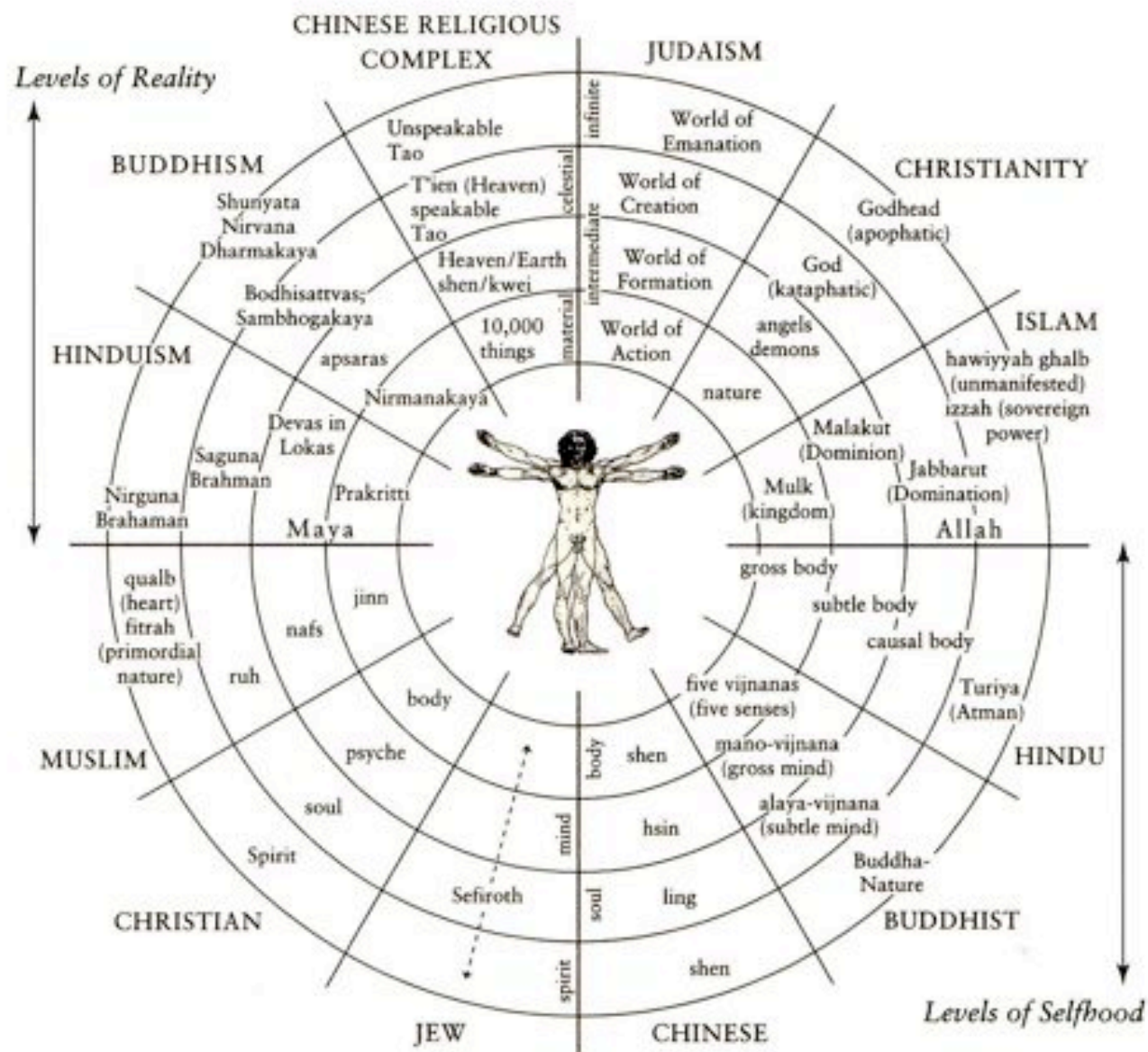


Figure 4-2. The Great Nest in Various Traditions.  
Graphic layout courtesy of Brad Reynolds.

# Academic Research on Meditation

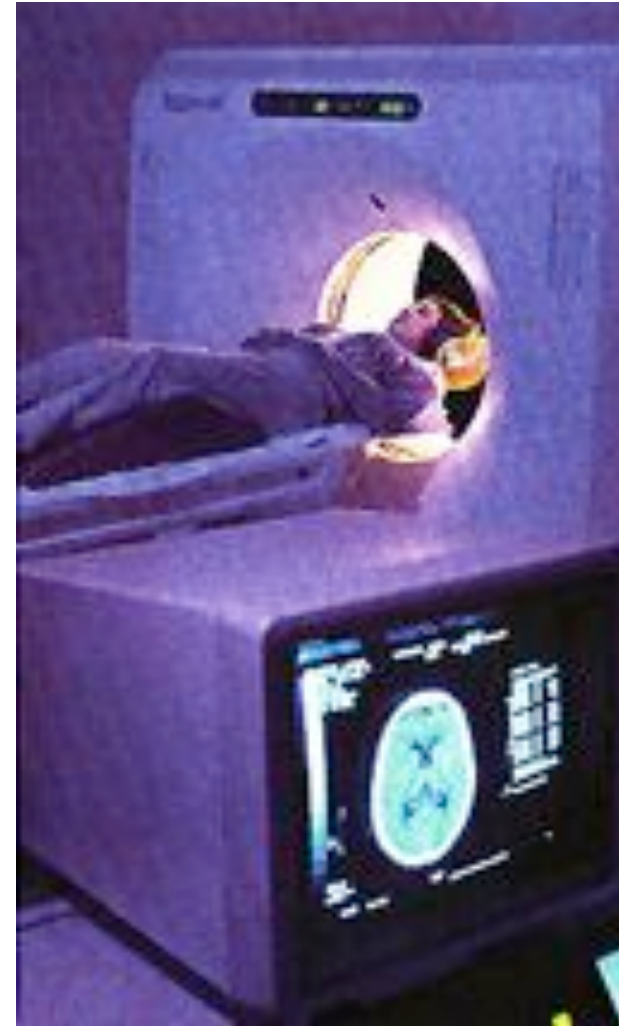
- Keith Wallace published the first research in 1968 on meditation with his PhD thesis *The Physiological Effects of Transcendental Meditation: A Proposed Fourth State of Consciousness*.
- TM has had more than 600 studies on it, at 200 independent universities and research institutes in 30 countries.
- TM has had original research published in over 120 peer-reviewed journals
- By 360 scientists, most of whom are not affiliated with organisations promoting TM.
- The Natural Therapies Research Unit at the Royal Hospital for Women in Sydney recently completed a systematic review of the scientific evidence for meditation.
- Of more than 3200 articles on meditation in peer-reviewed literature, less than 100 (about 3%) were randomised controlled trials (RCTs). While the majority of these RCTs reported positive effects of meditation, more than two-thirds failed to properly address the placebo effect – the most important confounder in medical research.
  
- Western Meditation & brain research is in its infancy, with relatively little scientific data.
- Limits of tools, new technology constantly being developed but no studies while moving.
- Objectivity of some research is questionable given the self-interest of some researchers.

# Effects on the Brain

- Scientists used to believe that connections among brain nerve cells were fixed early in life and did not change in adulthood. But that assumption was disproved over the past decade with the help of advances in brain imaging and other techniques, and in its place, scientists have embraced the concept of ongoing brain development and "neuroplasticity."
- High activity in left prefrontal cortex - 'the Happiness centre' - are associated with increased happiness.  
(Richard Davidson, University of Wisconsin.)
- Growth of prefrontal cortex, blood flow & connections. This part of the brain is associated with concentration, planning and meta-cognition (thinking about thinking).  
(Sara Lazar. Massachusetts General Hospital.)

# Meditation and the Brain

- Dr Tomio Hirai of the University of Tokyo's Medical School showed that meditation results in distinctive brain wave states.
- The brain is like a radio transmitter, its thought processes actually emitting waves at different frequencies.
- A frequency is the rate at which the wave cycles or vibrates.
- use an magnetoencephalograph (MEG), an improvement on the older electroencephalograph (EEG) which measures only electrical activity.



# Brain Waves

## **Beta waves: 14-100Hz**

- normal waking consciousness
- concentration
- arousal, alertness and thinking

## **Alpha waves: 8-13Hz**

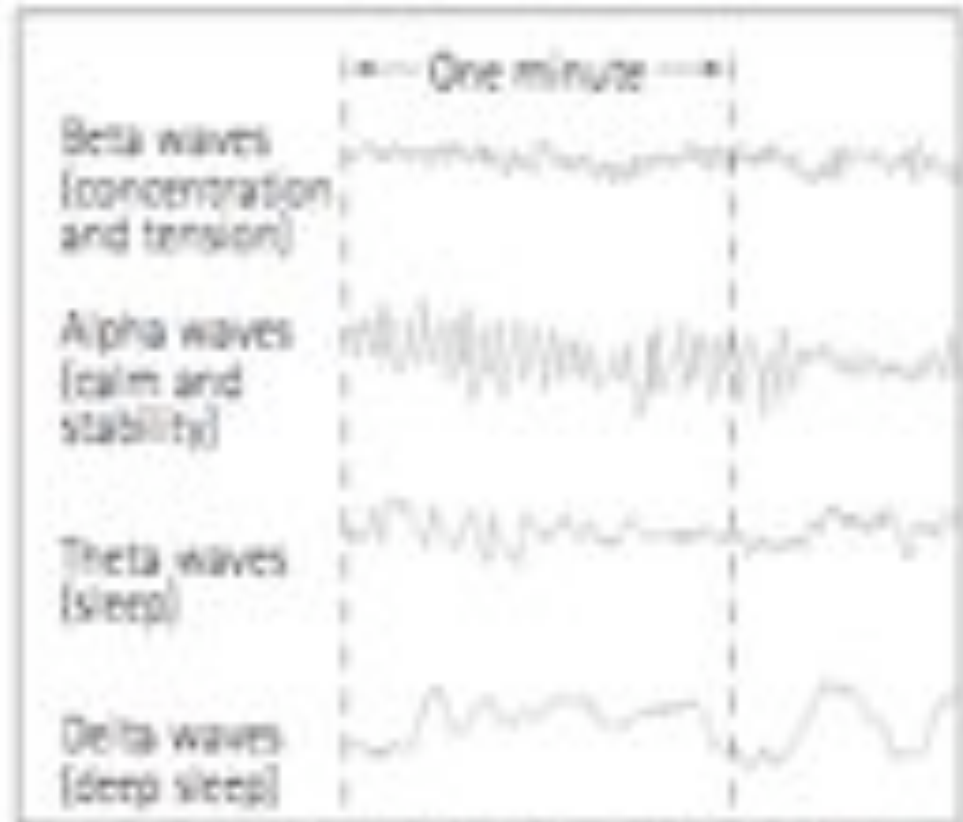
- 'twilight state' between waking & sleep
- relaxed calm

## **Theta waves: 4-8Hz**

- dreaming sleep
- increased creativity, learning & memory.

## **Delta waves: 0-4Hz**

- deep sleep
- no mental activity



Changes in mental state and the frequency of brain waves

## **‘Psychomotor vigilance task’**

- A commonly used test to quantify mental acuity, the test involves staring at an LCD screen and pressing a button as soon as an image pops up.
- Typical response is 200 to 300 milliseconds.
- Volunteers were tested before and after 40min of either sleep, meditation, reading or light conversation. The 40min nap was known to improve performance (after an hour or so to recover from grogginess).
- But what astonished the researchers was that meditation was the only intervention that immediately led to superior performance, despite none of the volunteers being experienced at meditation.

Bruce O’Hara and colleagues at the University of Kentucky

# Gamma Waves & Consciousness

- Recent research (2004) by Richard Davidson, Uni of Wisconsin, has shown the 40Hz neural oscillations occur all over the brain, moving in waves from front to back and deeper into the cortex as ripples as a result of sensory stimulation.
- Greater activation of fast-moving and unusually powerful gamma waves.
- Movement of the waves was far better organized and coordinated.
- Some of the monks produced gamma wave activity more powerful than any previously reported in a healthy person.
- Baseline activity higher pre meditation, peaks in meditation and remains higher post
- **Suggests the presence of consciousness is associated with the presence of the 40Hz state.**
- The 40Hz oscillatory activity disappears if the brain is in a coma or anaesthetised state.
- Increased gamma activity brings greater synchronisation of the brains activity.
- Information passed more efficiently.
- Data suggests that amount of training is related to amount of gamma activity
- Different results to studies that show increase in slow alpha or theta rhythms

	Physical/Behavioural	Psychological
<b>Individual</b>	<p>Lower blood pressure            Less heart disease            Lower cholesterol            Reduction in asthma            Fewer ulcers            Reduced drug usage            (alcohol, cigarettes, drugs)            Different brain wave states</p>	<p>Less stress            Improved self-concept            Higher IQ            Improved self-esteem            Higher job satisfaction            Increased grade point average            Greater self-actualisation            Greater individual creativity</p>
<b>Team/organisational</b>	<p>Increased productivity            Decreased absenteeism            Reduced injuries            Increased sales            Increased profit</p>	<p>Improved leadership behavior            Reduced desire to leave the job            Greater creativity            Increased responsiveness to change            Greater team spirit            Greater clarity of company goals            Reduced conflict</p>
<b>Social</b>	<p>Lower levels of homicides,            rapes and assaults            Lower levels of hospitalisation            Fewer visits to doctors            Lower rate of heart disease            Lower levels of cancer            Slowing down aging process</p>	<p>Less social stress in cities with            1% of population meditating            Reduced social conflict</p>

Summary of major research findings of meditation at physical and psychological levels





**MISSION AND ORGANIZATION**

[History of Mind and Life](#)

[Buddhism and Modern Science](#)

[Mind and Life Boards](#)

[Acknowledgements](#)

**CONFERENCES AND EVENTS**

[Mind & Life Summer Research Institute](#)

**MIND & LIFE IN THE NEWS**

**BOOKS AND PUBLICATIONS**

**RESEARCH INITIATIVES**

**SUPPORT MIND & LIFE**

[Make a Pledge or Gift Online](#)



THE DALAI LAMA  
AND WESTERN  
SCIENCE

The Mind and Life Institute's Vision, Purpose and Mission

**Vision**

To establish a powerful working collaboration and research partnership between modern science and Buddhism - the world's two most powerful traditions for understanding the nature of reality and investigating the mind.

**Purpose**

To promote the creation of a contemplative, compassionate, and rigorous experimental and experiential science of the mind which could guide and inform medicine, neuroscience, psychology, education and human development.

To contribute to the epistemological revolution which is taking place through modern physics as well as philosophy, in order to extend our understanding of knowledge to one that integrates the diverse dimensions of our world.

**Mission**



The Mind and Life Institute is dedicated to fostering dialogue and research at the highest possible level between modern science and the great living contemplative traditions, especially Buddhism. It builds on a deep commitment to the power and value of both of these ways of advancing knowledge and their potential to alleviate suffering. It realizes its mission through a range of inter-related activities:

- Extended semi-private meetings between prominent scientists and leading figures from the contemplative traditions, most notably, the Dalai Lama of Tibet
- Public conferences to stimulate interest in the potential of these scientific dialogues within the larger scholarly community
- Intellectually rigorous yet accessible publications, based on Mind and Life meetings and conferences to share the power and potential of these collaborative exchanges with the general public
- Collaborative research projects and meetings focused on designing research, between laboratory scientists, scholars and practitioners of Buddhism and other forms of contemplative practice.



EUROPEAN  
COMMISSION

Community research

Origin & Evolution of Human  
Higher Cognitive Faculties

Report of a MEST High-Level Expert Group

# What it means to be human



SUPPLEMENT

PROJECT REPORT

SPECIFIC ACTIVITIES COVERING A WIDER FIELD OF RESEARCH