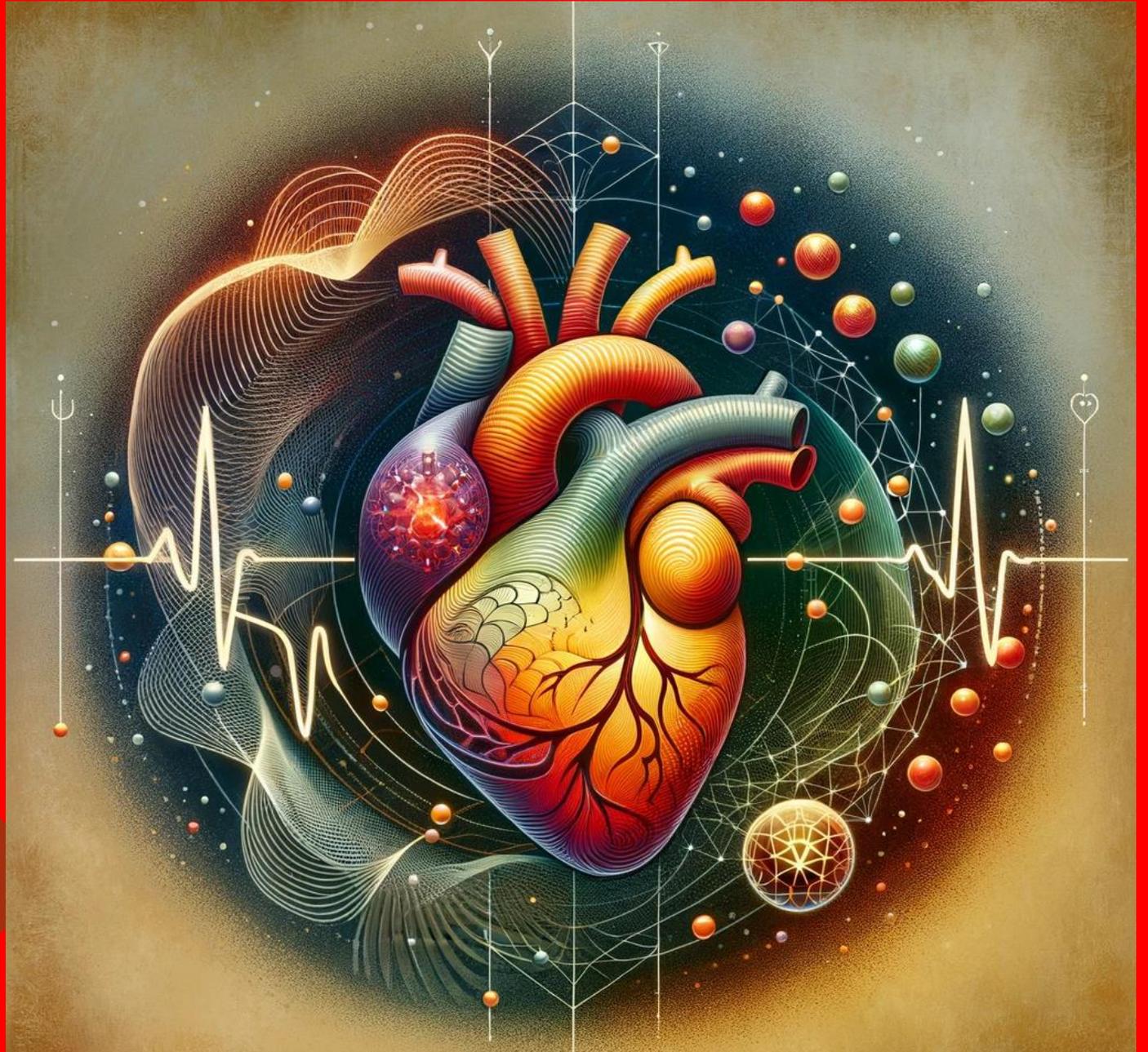


Jeffrey E. Hansen, Ph.D.  
Center for Connected Living, LLC

Slides were compiled by Dr. Hansen but have been largely adapted from HeartMath members and friends, Rollin McCraty, Howard Martin, Deborah Rozman, Doc Childre, Gregg Braden, Bruce Lipton, and Joe Dispenza.

Please visit: <https://www.heartmath.com/>

Heartfelt Living



*“Sometimes the heart knows things that the  
mind could never explain.”*

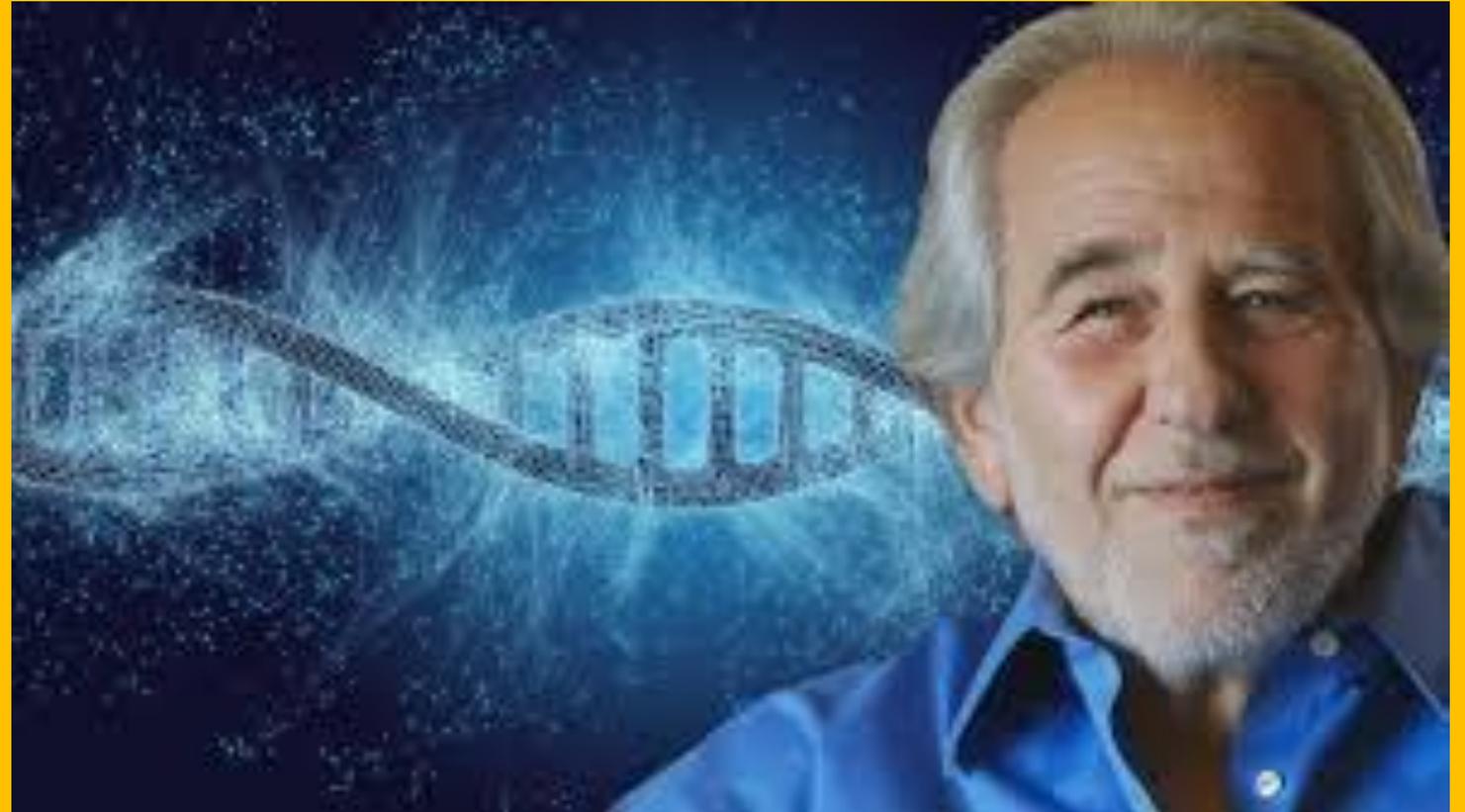
*– Ranjeet*

# Debate of the Ages - Energy vs Matter

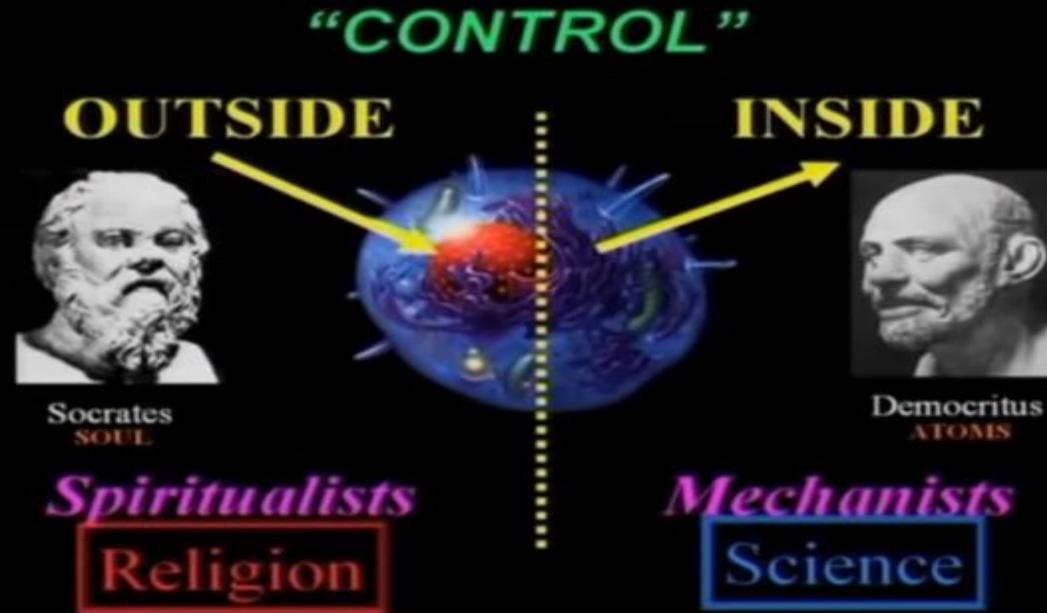
Cell biologist and medical school professor, Bruce Lipton, Ph.D., brilliantly describes how early thinkers and philosophers have influenced science and the current state of medicine. The following 10 slides are largely based on his work.

Click here for his full lecture.

[https://www.youtube.com/watch?v=82ShSNuru6c&ab\\_channel=vekmehelofkirr](https://www.youtube.com/watch?v=82ShSNuru6c&ab_channel=vekmehelofkirr)



# Debate of the ages – Energy vs Matter



- Dr. Bruce Lipton highlights the long-held question of whether we are all particle or are we both particle and spiritual/energy – a debate going back as far as Socrates and Democritus. Additionally, the question of whether control is merely within or is it from without as well?



✓ Democritus

## MATERIALISM



Socrates  
(470-399BC)

### *DUALISTIC PHILOSOPHY*

#### Vitalism - "Form" or "Soul"

- 1) Independent of and prior to the material world
- 2) Perfect or Ideal
- 3) Unchanging

#### Materialism - Physical Reality

- 1) A corrupt "shadow" of the Ideal

## Debate of the Ages - Energy vs Matter

These assumptions have far-reaching consequences for how we experience life and impact on fundamental approaches to medicine and psychology

<https://www.heartmath.com/>

**Isaac Newton**  
1643-1727



Newtonian Physics  
(matter only)



**Isaac Newton**  
1643-1727

***The Universe is a Machine***

*Philosophiæ naturalis principia mathematica*  
(*The Mathematical Principles of Natural Philosophy*, 1687)



**Celestial Mechanics**

## Debate of the Ages - Energy vs Matter

Centuries later, Isaac Newton, following in the footprint of Democritus developed calculus to explain the physical universe in terms of matter. Science and medicine have largely followed this model. Newton invented calculus to explain his model.

# Debate of the Ages – Energy vs Matter

*Rene Descartes*

1596-1650

“ *Cogito, ergo sum* ’

(I think, therefore I am)

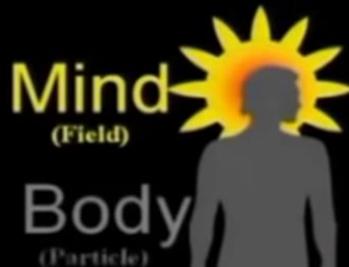


Mind

Body

*Quantum Physics*

(Matter=Energy)



Mind

(Field)

Body

(Particle)

*"The field is the sole governing agency of the particle."*

Albert Einstein

➤ Rene Descartes, on the other hand, following in the steps of Socrates, upheld that both mind and body are essential, the former being within and outside of the body – energy/wave. Descartes formulated the modern version of the mind–body problem. In metaphysics, he provided arguments for the existence of God, to show that the essence of matter is extension, and that the essence of mind is thought. This opens the door to quantum mechanics which is needed to describe the behavior of energy. We can define energy as organized information.

Health

~~Medical Model~~  
Biochemical machine  
controlled by genes  
Conventional  
Medicine

## Current Medical Model

The current Newtonian-based medical model is brilliant when it comes to such things as mechanical surgeries, excising cancers, etc., but falls short on many fronts. Sadly, as reported by Dr. Bruce Lipton, cellular biologist and medical school professor and Stanford research scholar, **iatrogenic** (illness caused by medical examination or treatment) is the number one cause of death in the US, ahead of cancer and cardiovascular disease.



### Leading Causes of Death

1. Iatrogenic Illness  
783,936

2. Cardiovascular Disease  
699,697

3. Cancer  
553,251

# Debate of the Ages - Energy vs Matter

Newtonian Mechanics can only describe the behavior of matter which would be great if that that were all that there was, but science is proving that Socrates and Descartes were correct, energy must be added to the equation to describe the magnificent complexity of life. Newtonian Mechanics fails to predict, for example, the complex shapes of proteins which are the building blocks of the body, on the other hand, Quantum Mechanics does this beautifully.

**Newtonian Mechanics**

*Universe = Matter*

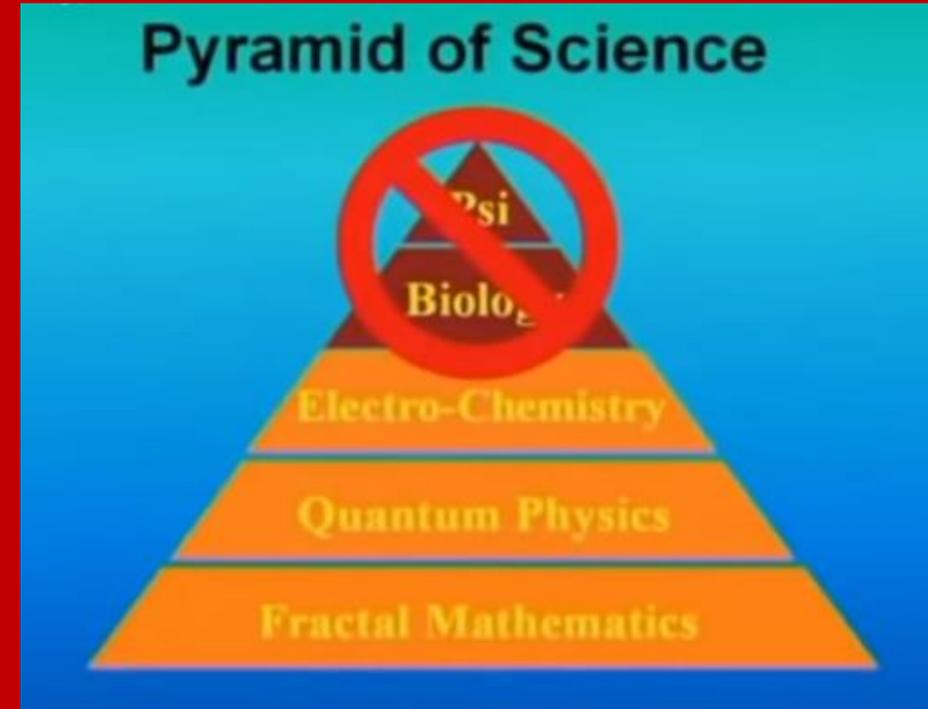
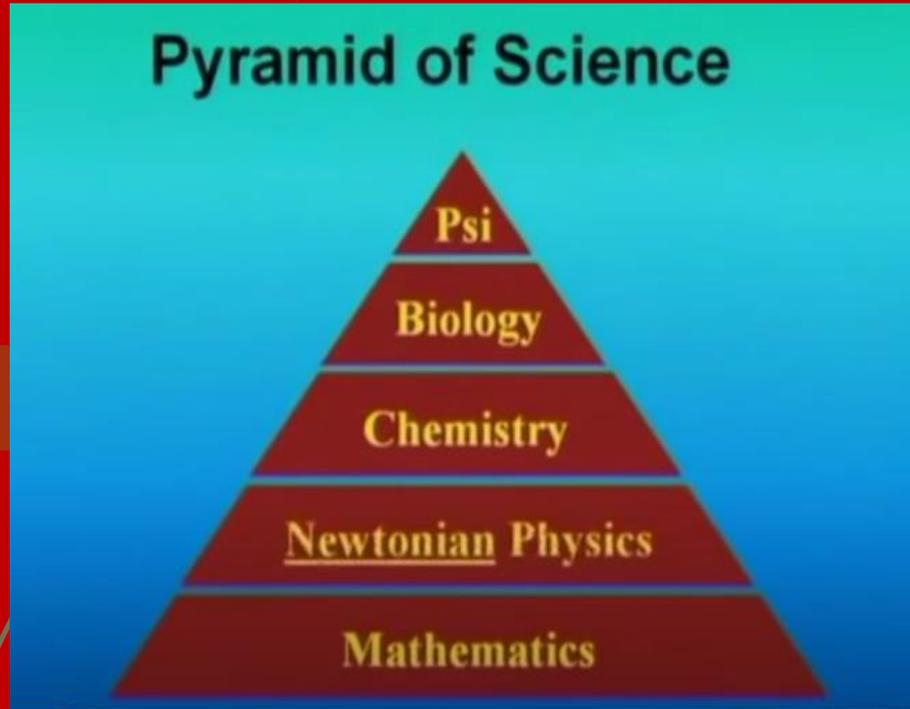
(~1700)

**Quantum Mechanics**

*Universe = Energy*

(~1925)

# Debate of the Ages – Energy vs Matter



So, we see that each theory (Newtonian vs Quantum) has implications for many science disciplines. If any one step in the pyramid changes, all disciplines above it must change to accommodate the change. Newtonian physics on the left side has stifled disciplines above it. Quantum physics has brought great changes to electro-chemistry and biology and psychology are only beginning to incorporate them

Drugs companies  
sell chemicals  
they do not sell energy

# The Power of the Cell

► Dr. Lipton asserts that each cell has a capacity of **1.4 volts** and given that our bodies are comprised of approximately 50 trillion cells, we carry within us a potential of **70 trillions volts**. This energy has immense potential he adds to change us.

1,4 volts

CORRECTION:

SEVENTY TRILLION VOLTS  
70.000.000.000.000



Now that we can appreciate that perhaps old models no longer serve us well, we can open ourselves to the need for new ways of healing. For more than 25 years, **HeartMath Institute** has been researching the heart-brain connection and learning how the heart influences our perceptions, emotions, intuition and health.

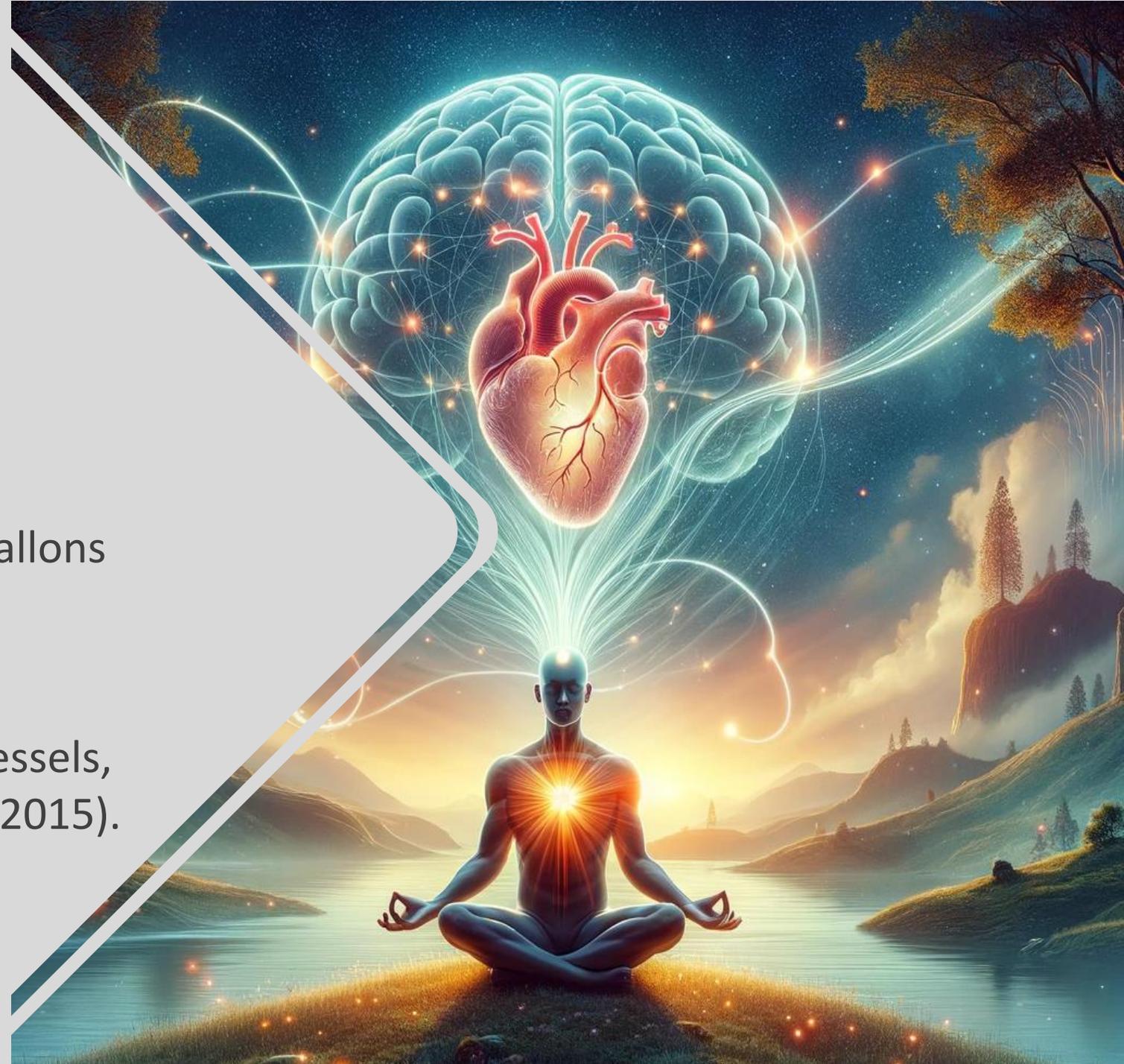
HeartMath helps you tap into the power and intelligence of your heart – your heart’s intuition – which awakens you to the best version of yourself. It borrows heavily from quantum theory and an exciting new field of medicine, **neurocardiology**.

HeartMath helps you tap into the power and intelligence of your heart – your heart’s intuition – which awakens you to the best version of yourself.

For more information on HeartMath, click: <https://youtu.be/3Vh9qEbITOE>

# Our incredible heart:

- ▶ Beats 101,000 times a day
- ▶ Circulates an astonishing 1,900 gallons of blood
- ▶ Through 60,000 miles of blood vessels, arteries, and capillaries (Braden, 2015).





Above all else, guard your heart,  
for everything you do flows from it.

**Proverbs 4:23**



## The Heart Wisdom of the Ancients

Click here to listen to the amazing Gregg Braden:

[https://www.youtube.com/watch?v=3KEv-oQe0jl&ab\\_channel=GreggBradenOfficial](https://www.youtube.com/watch?v=3KEv-oQe0jl&ab_channel=GreggBradenOfficial)

k: <https://youtu.be/Hir6I-RfOiY>

"Know Allah intervenes  
between man and his heart."

The Holy Quran 8:24

If you were to ask what the most important organ in the body, most would say the brain?



➤ Braden notes that from **Leonardo da Vinci's** day, 500 years ago, until the late 1990s, people throughout the Western-educated world held that the brain is the “conductor” leading the symphony of functions that enable us to stay alive.

➤ This belief that the brain is the **control center** for the body, emotions, and memories has been so fully and universally accepted and deeply engrained in our collective psyches and taken for granted until now.

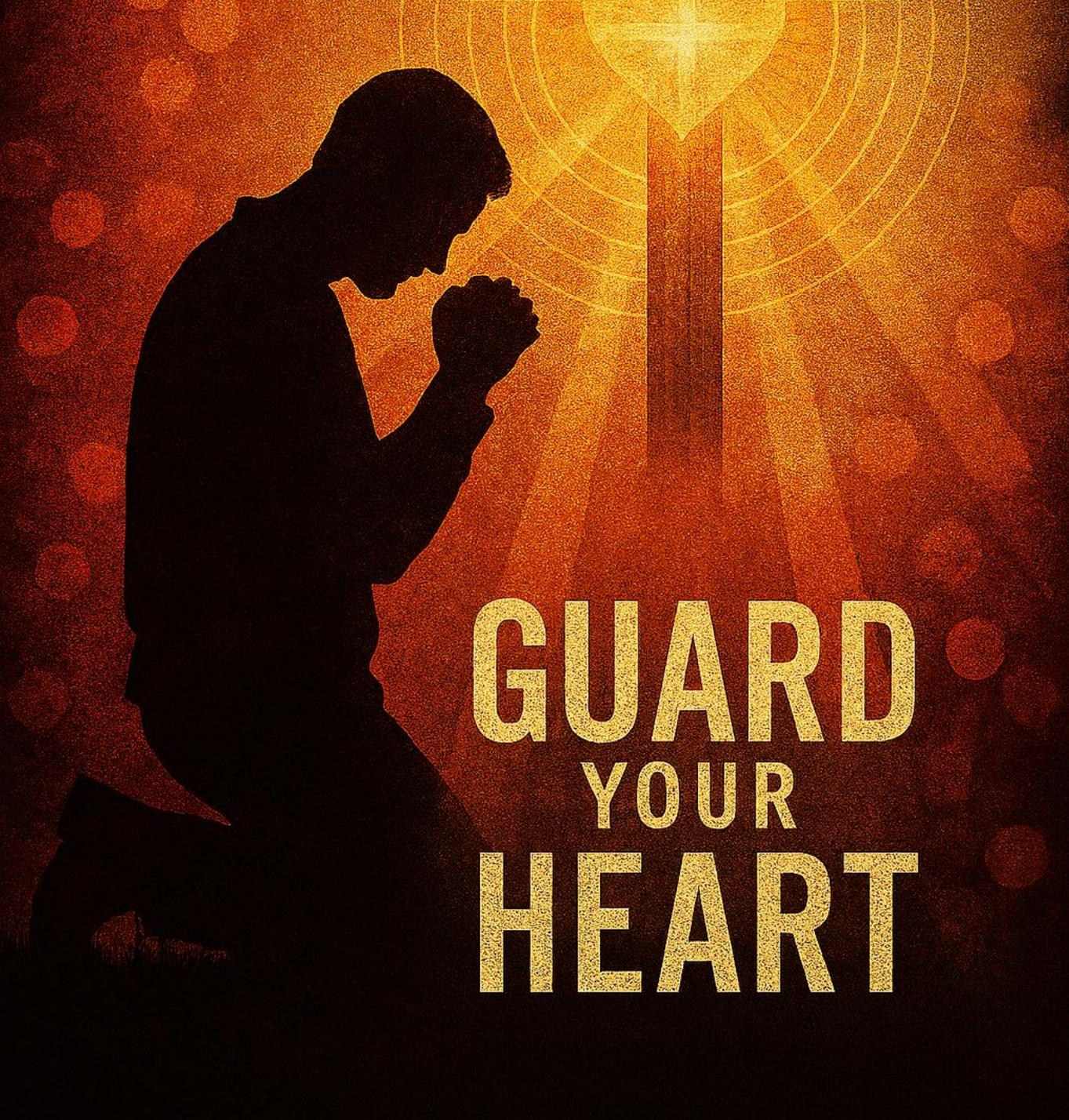
➤ Braden asserts that while it is certainly true that the brain's functions include processes such as perception and motor skills, information processing; and provides triggers for sleep, hunger, desire for sex, and the strength of our immune system, there is more to the story (Braden, 2015).

**As some may know, religious and mystery traditions have universally held that the heart has been regarded as a path to deep wisdom in life (Braden 2015b).**

In the **Bible**, for example, the heart is mentioned **826 times in 59 of 66 books**. The Bible reveals that our heart isn't a separate part of our being. Instead, our heart is a composition of all three components of our soul - our mind, emotion, and will plus the most important part of our spirit, our conscience (Bibles for America, 2021). Solomon wrote in Proverbs 4:23, "Keep your heart with all diligence; for out of it spring the issues of life." The Bible posits that what is in your heart will direct your life (Back to the Bible, 2019).

The **Quran** similarly notes that our heart is a source of wisdom and guidance and mentions the human heart **132 times**. Of the Qur'anic statements, some describe this sentient organ as having the capacity of being a center of reasoning, intentions, and decision-making. Consequently, human hearts can either be healthy or diseased. (Janat Al Quran, 2017).

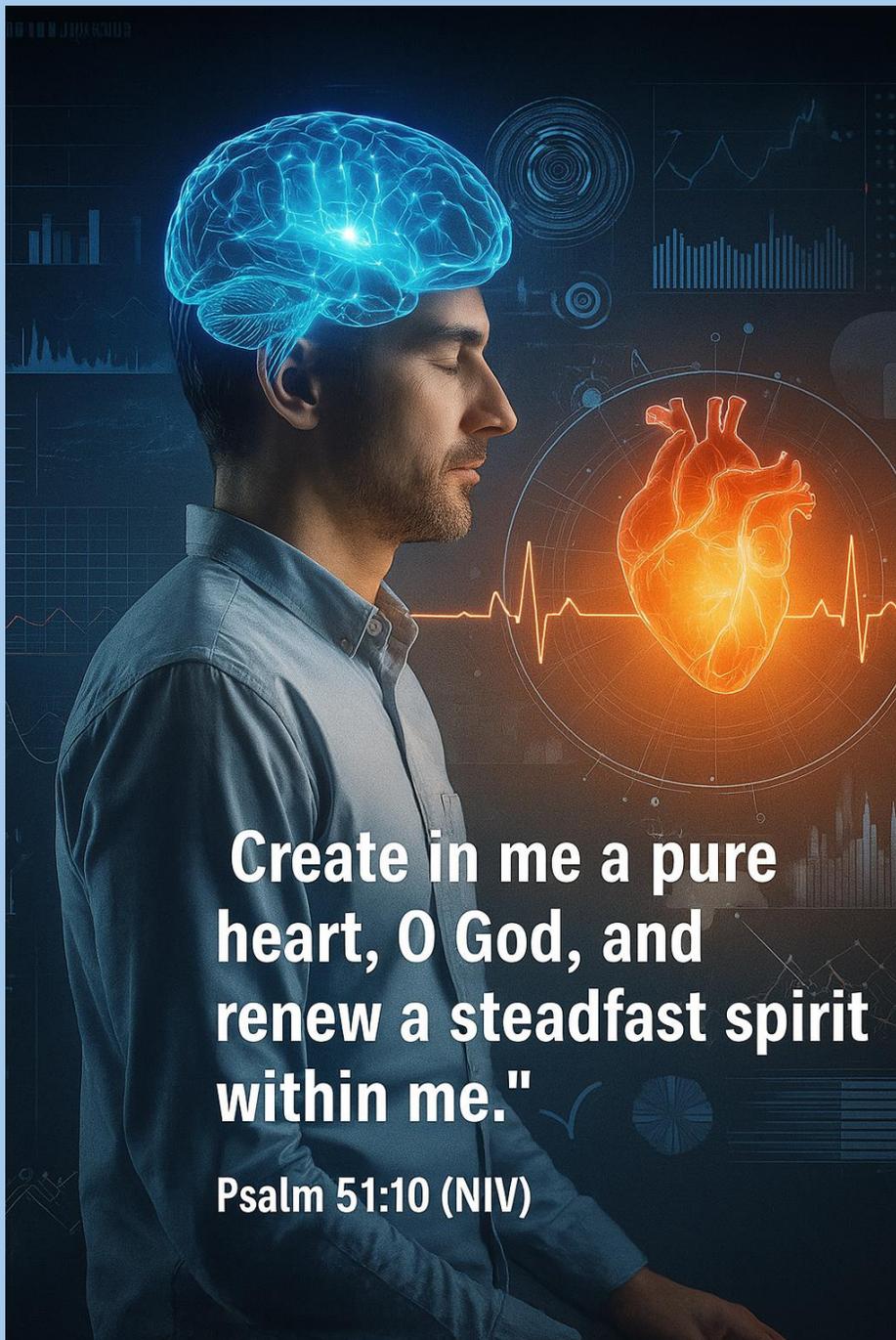
The **Egyptians** likewise believed that the heart, rather than the brain, was the source of human wisdom, as well as emotions, memory, the soul and the personality itself. Physiology and disease were all connected in concept to the heart, and it was through the heart that God spoke, giving ancient Egyptian's knowledge of God and God's will. As such, the heart was considered the most important of the body's organs (Dunn, 2021).



**GUARD  
YOUR  
HEART**

**Proverbs 4:23 (NIV)  
"Above all else, guard  
your heart, for  
everything you do  
flows from it."**

This aligns with HeartMath's idea that the heart is a central organizing force. Guarding the heart reflects intentional regulation of emotional energy and coherence.



**Create in me a pure heart, O God, and renew a steadfast spirit within me."**

**Psalm 51:10 (NIV)**

**Psalm 51:10 (NIV)**  
**"Create in me a pure heart, O God, and renew a steadfast spirit within me."**

A pure heart and steady spirit echo the principle of coherence—stability, integrity, and alignment of inner life.



# Proverbs 4:23

Keep your heart with all vigilance, for from it flow the springs of life.

HeartMath emphasizes maintaining heart coherence through inner regulation and balance. This verse stresses the importance of heart health and managing emotions.



# Proverbs 3:5

Trust in the LORD  
with all your heart,  
and do not lean on  
your own understanding.

HeartMath teaches connecting with the heart's intuitive intelligence to find inner guidance. This verse highlights the value of heart-centered wisdom



# The Love of the Heart in Scripture

Verses on Love, Healing, and Connection

# Love of the Heart Toward God

Deuteronomy 6:5 (NIV)  
“Love the Lord your God  
with all your heart and  
with all your soul and  
with all your strength.”

Proverbs 4:23 (NIV)  
“Above all else, guard  
your heart, for  
everything you do flows  
from it.”

# Love and Relationships

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1 Peter 1:22 (NIV)

“Now that you have purified yourselves by obeying the truth so that you have sincere love for each other, love one another deeply, from the heart.”

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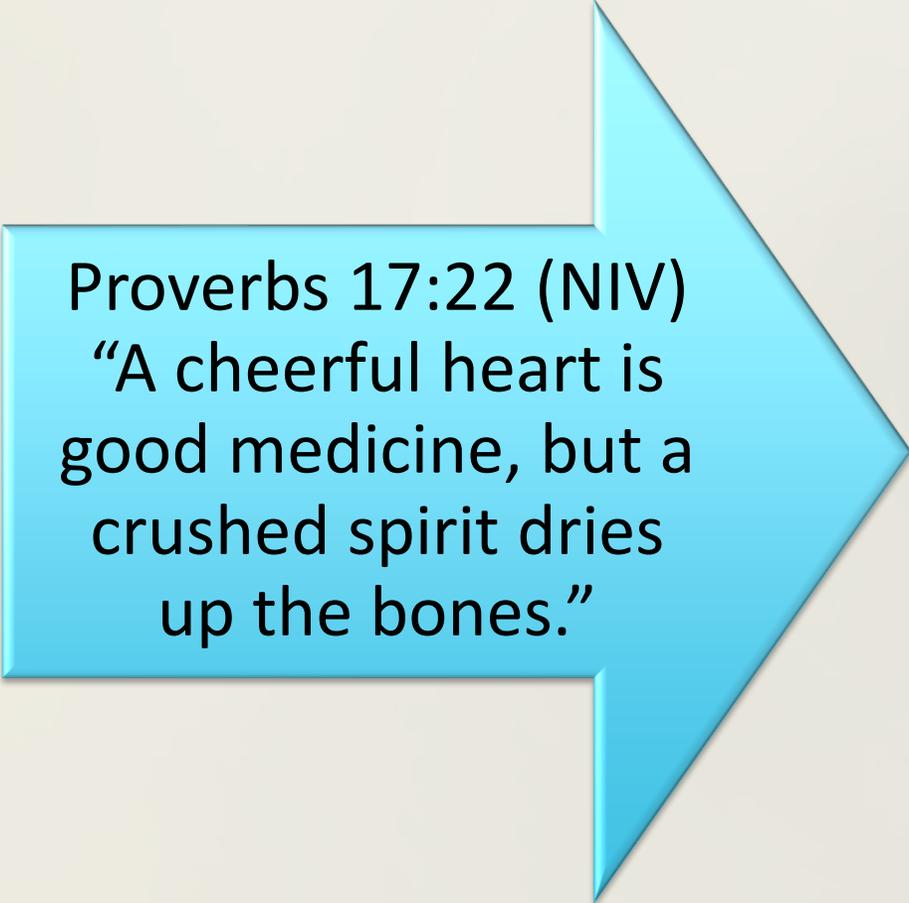
1 Corinthians 13:4–7 (NIV)

“Love is patient, love is kind. It does not envy, it does not boast, it is not proud... It always protects, always trusts, always hopes, always perseveres.”

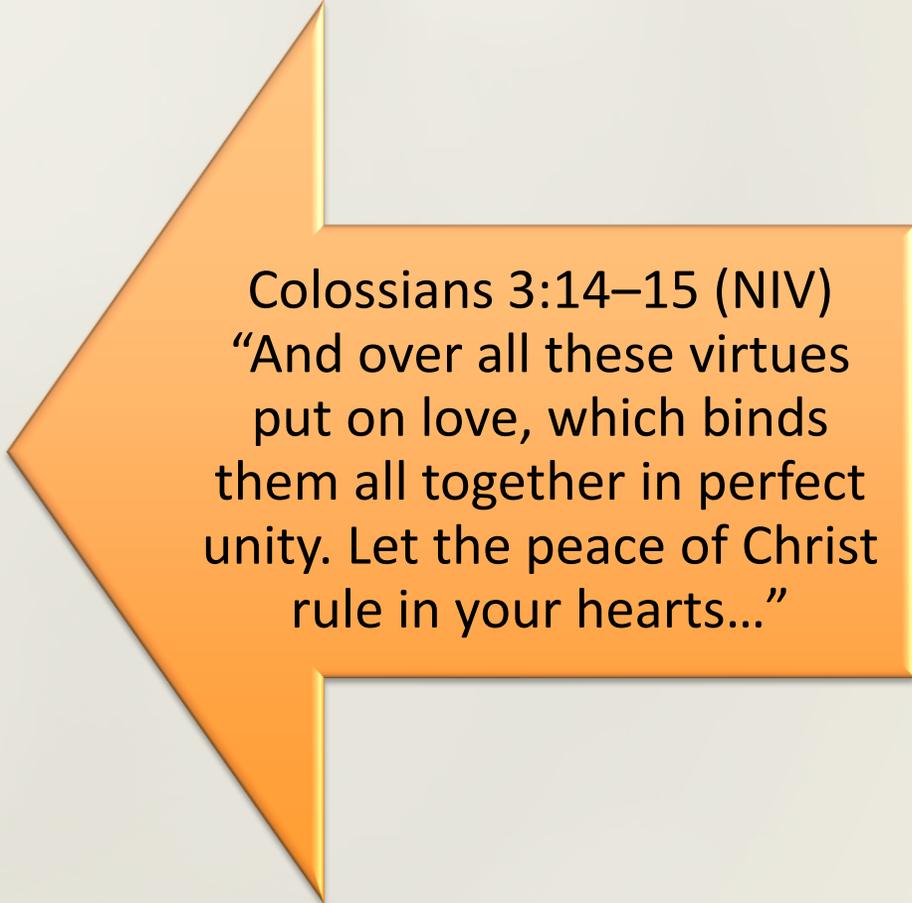


The Love of the  
Heart in Scripture

# Love's Healing and Health



Proverbs 17:22 (NIV)  
“A cheerful heart is good medicine, but a crushed spirit dries up the bones.”



Colossians 3:14–15 (NIV)  
“And over all these virtues put on love, which binds them all together in perfect unity. Let the peace of Christ rule in your hearts...”

# Love as Life and Vitality

Song of Songs 8:6 (NIV)

“Place me like a seal over your heart... for love is as strong as death, its jealousy unyielding as the grave. It burns like blazing fire, like a mighty flame.”

Romans 5:5 (NIV)

“And hope does not put us to shame, because God’s love has been poured out into our hearts through the Holy Spirit, who has been given to us.”





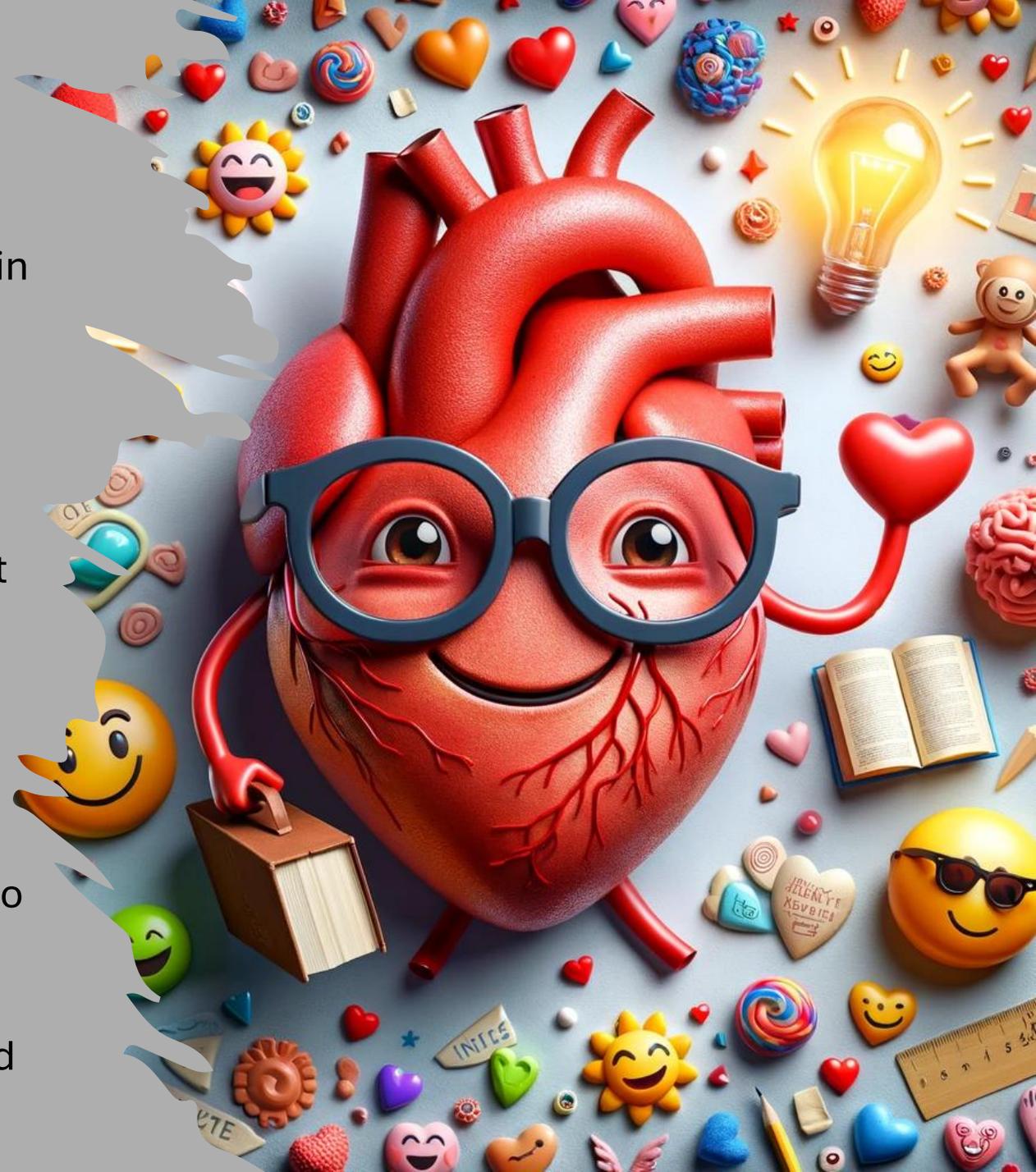
TRUST IN THE  
LORD WITH ALL  
YOUR HEART,

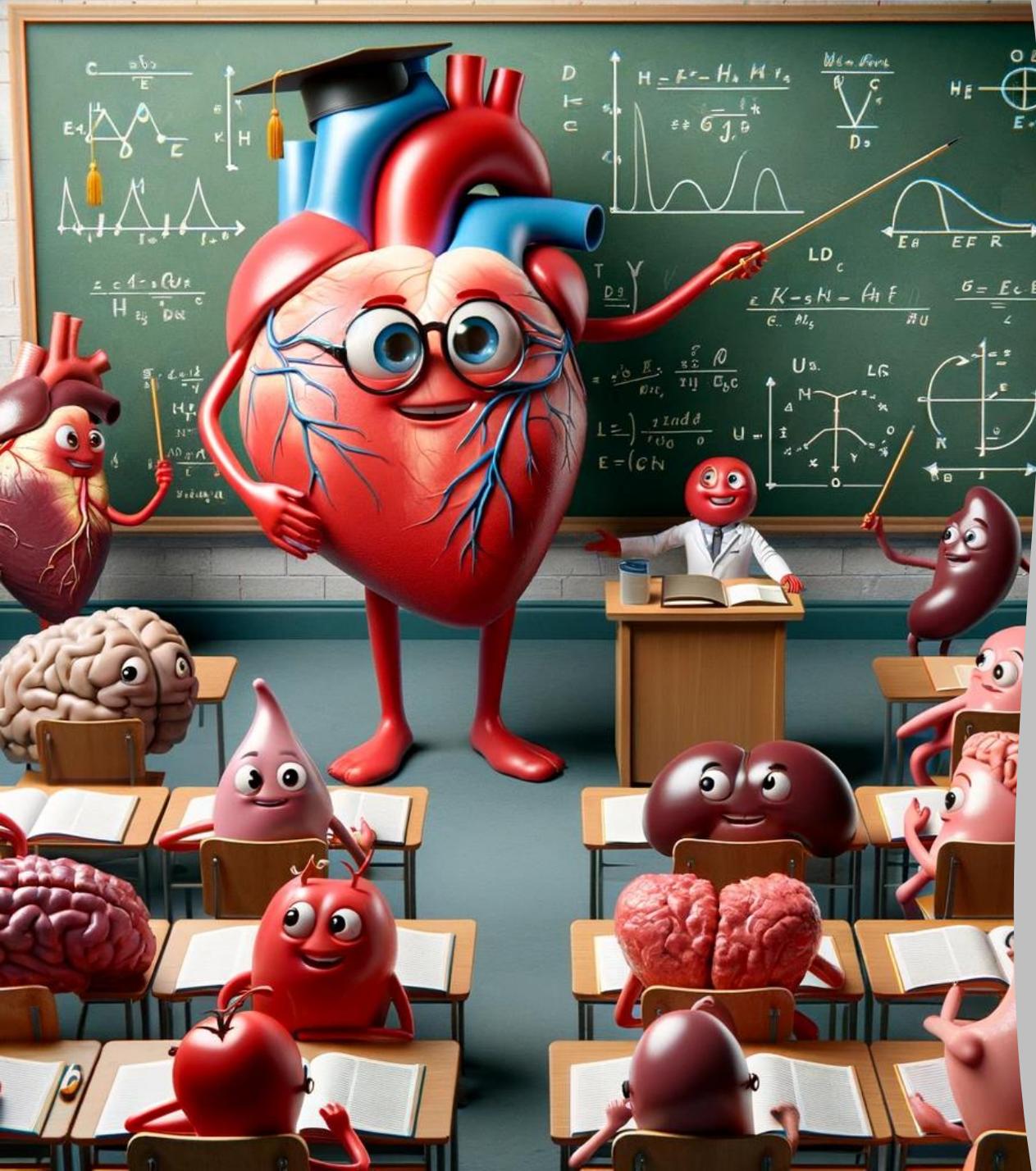
and do not lean on your  
own understanding.

In all your ways  
acknowledge him,  
and he will make straight  
your paths.

# What – Heart Intelligence?

- Dr. Armour, MD, PhD., at the University of Montreal in 1991, discovered that the heart has its own "little brain" or "intrinsic cardiac nervous system" (cited in Braden, 2015).
- This "heart brain" is composed of approximately 40,000 neurons, called sensory neurites that are similar to neurons in the brain, meaning that the heart has its own nervous system.
- In addition, the heart communicates with the brain in many methods: neurologically, biochemically, biophysically, and energetically.
- The vagus nerve, which is 80% afferent, carries information from the heart and other internal organs to the brain.
- Signals from the "heart brain" redirect to the medulla, hypothalamus, thalamus, and amygdala and the cerebral cortex (Braden, 2015a, 2015b).





# What – Heart Intelligence?

- Braden notes that a key role of the heart brain is to detect changes in the body such as hormone levels and other chemicals and to communicate this information to the brain so it can meet our needs accordingly.
- The heart brain achieves this by converting the language of the body, chemistry, to the electrical language of the nervous system so it makes sense to the brain.
- For example, the heart's encoded messages to the brain informs it as to when we need adrenalin for danger or when we need less in times of safety so the immune system can be turned on (Braden, 2015a, 2015b).

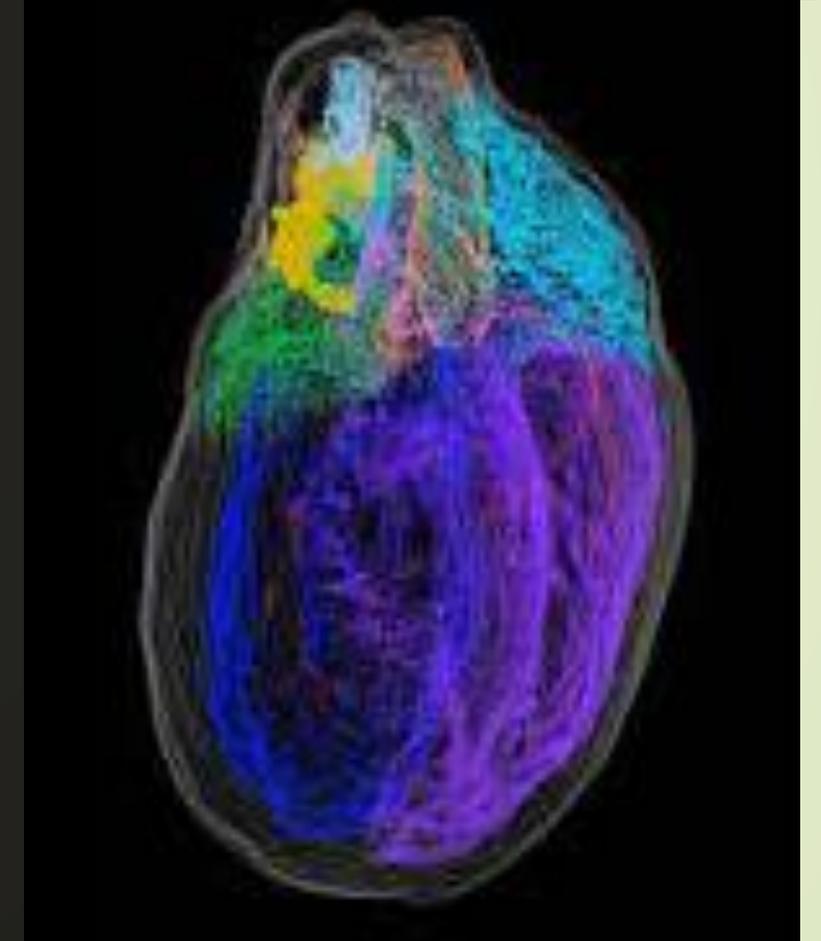
Imaging showing the sensory neurites (in yellow) which comprise the Little Brain of the heart



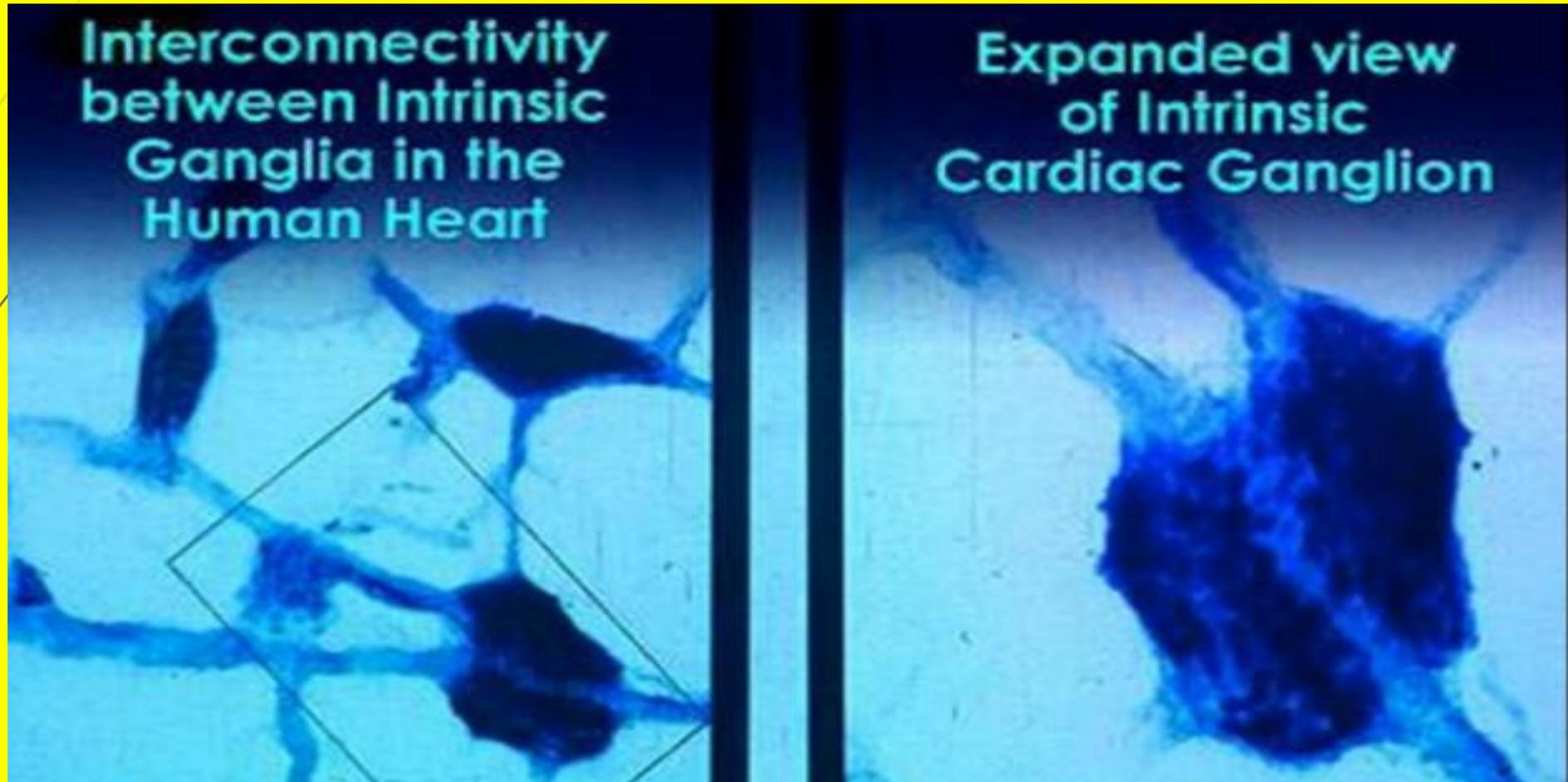
## The heart's "little brain" can:

Act **independently** of the cranial brain to think, learn, and remember.

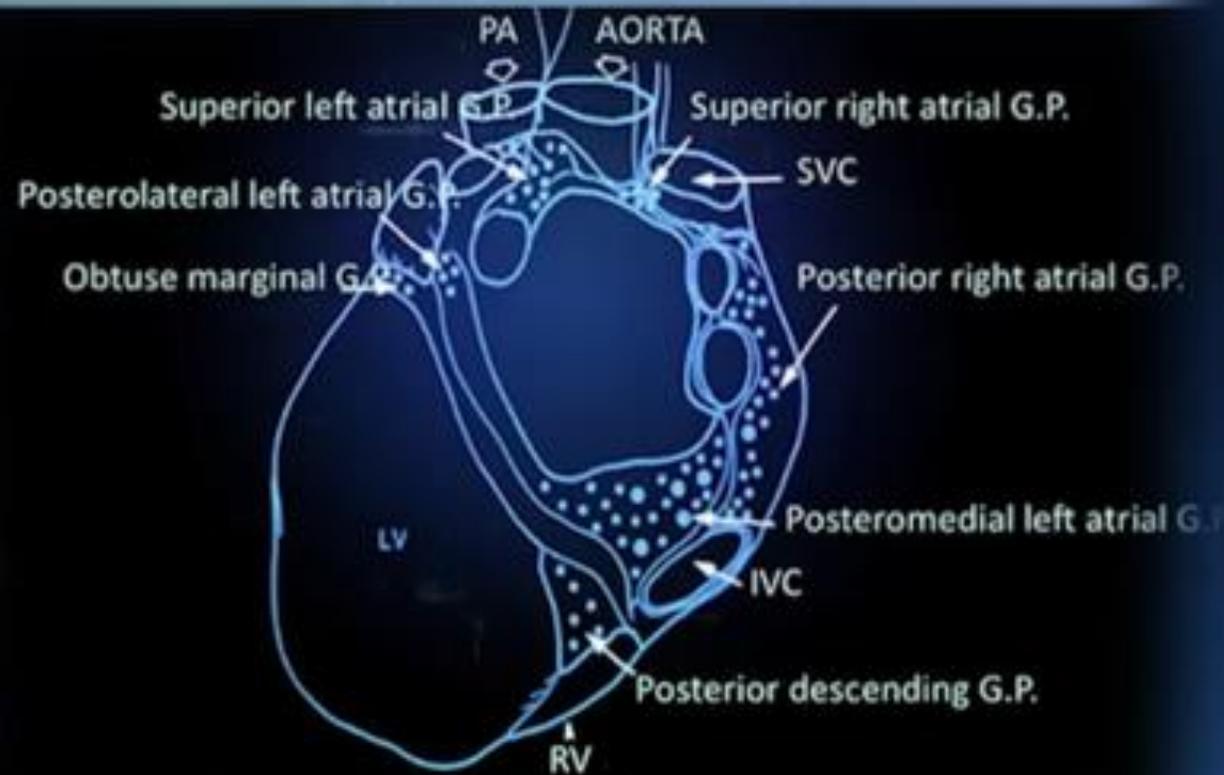
Act **in harmony** with the brain to give us the benefit of a single and potent network shared by both the heart and the brain (Braden, 2015).



Imaging showing the interconnectivity of sensory neurites in the heart (neural networks)



# Heart's Nervous System



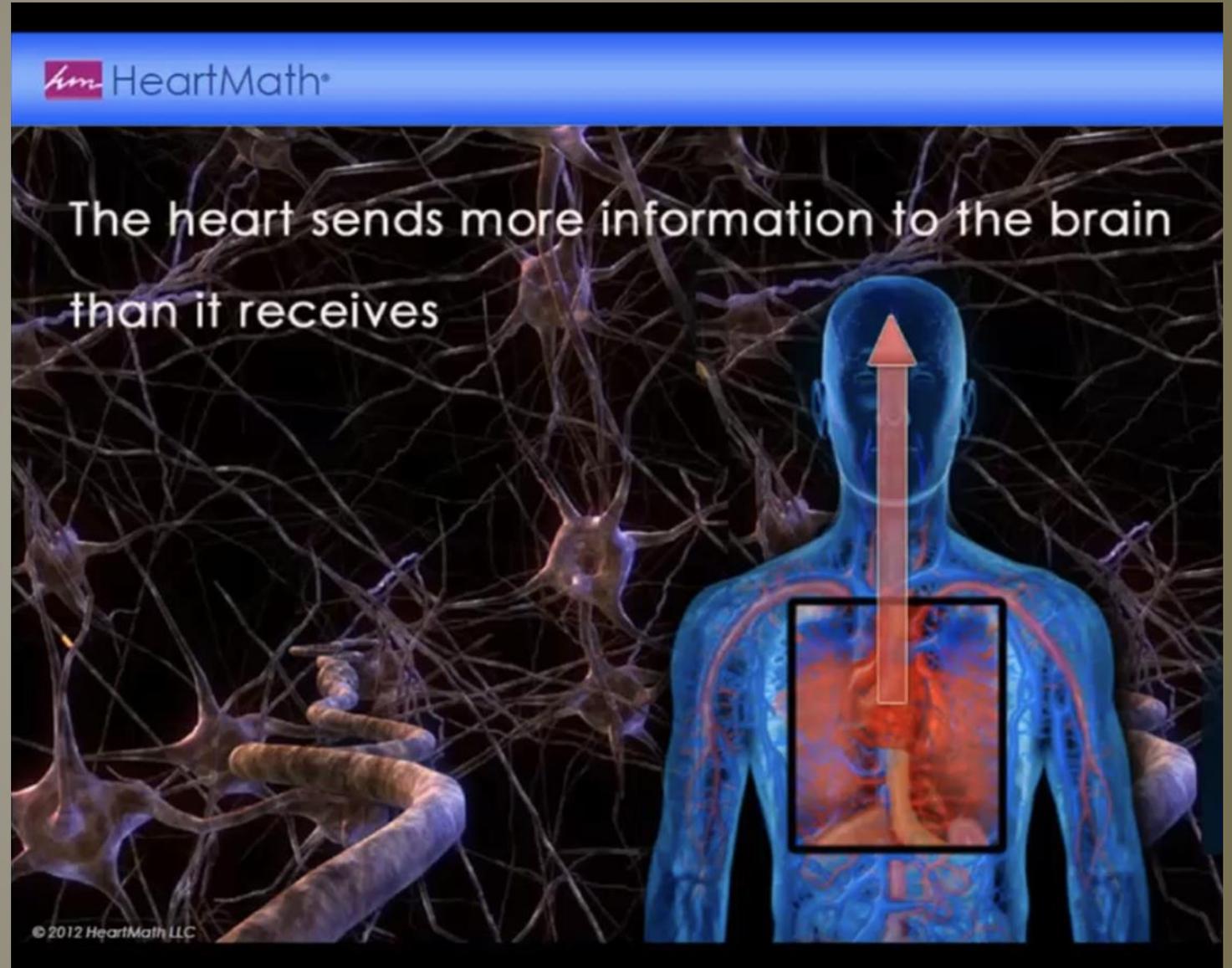
Location and Distribution of Intrinsic Cardiac Ganglia

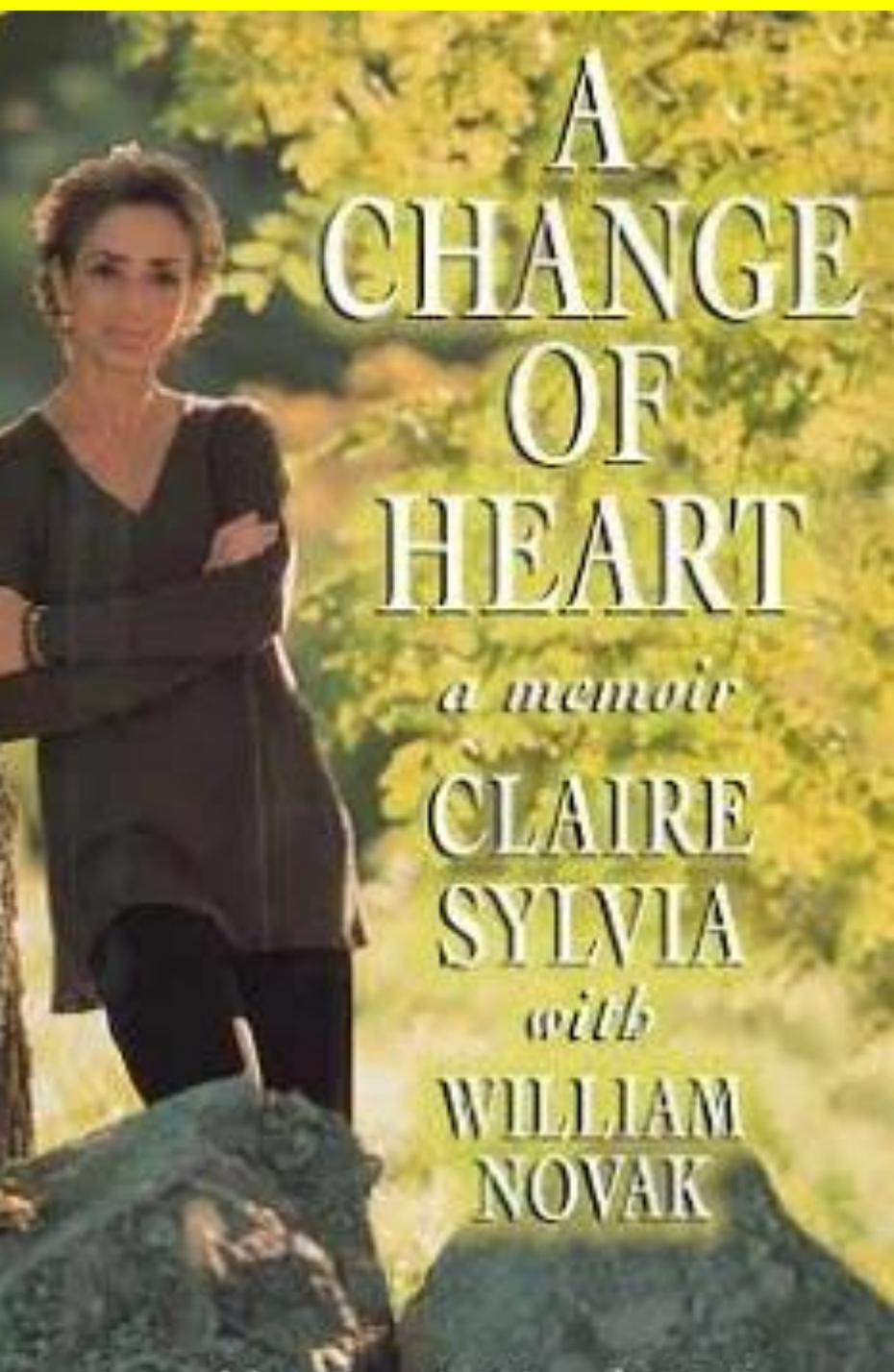
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# Heart-Brain Communication

**80 %** of the information flow is from heart to brain (afferent) whereas only **20%** of the information flow from brain to heart (efferent)





# A CHANGE OF HEART

*a memoir*

CLAIRE  
SYLVIA

*with*

WILLIAM  
NOVAK

## Stories of the Heart:

- ▶ **Clare Sylva**, a professional dancer, in 1998 received the heart and lungs of a young man, Tim, who died in a motorcycle accident.
- ▶ Not long after the transplant, she began to crave new foods such as **chicken nuggets and green peppers** and was specifically drawn to KFC to satisfy her cravings.
- ▶ She was able to eventually visit the parents of this young man and discovered that **Tim precisely loved the same kinds** of foods that she was now craving.
- ▶ Clare had acquired her cravings through the phenomenon of **memory transference** which has become an area of serious study and eventual acceptance.

Please click below for Dr. Braden's enticing discussion:

<https://youtu.be/Hir6I-RfOiY>

Paul Pearsall, Ph.D.  
Author of the New York Times bestseller  
*The Plowman's Progress*

Tapping the Wisdom and Power of Our  
Heart Energy

# The Heart's Code

The New Findings About  
Cellular Memories and  
Their Role in the Mind/  
Body/Spirit Connection

## Stories of the Heart

- ▶ In 1999, **Dr. Paul Pearsall, a neuropsychologist**, in *The Heart's Code* wrote about an 8-year-old little girl who received a heart from a 10-year-old girl.
- ▶ Almost immediately after the surgery, she started having vivid nightmares of being **chased, attacked, and murdered**.
- ▶ Her mother arranged a consultation with a psychiatrist who after several sessions concluded that she was witnessing actual physical incidents.
- ▶ They decided to **call the police** who used the detailed descriptions of the murder (the time, the weapon, the place, the clothes he wore, and what the little girl he killed had said to him) given by the little girl to find and convict the man in question.

Please click below for Dr. Braden's enticing discussion:

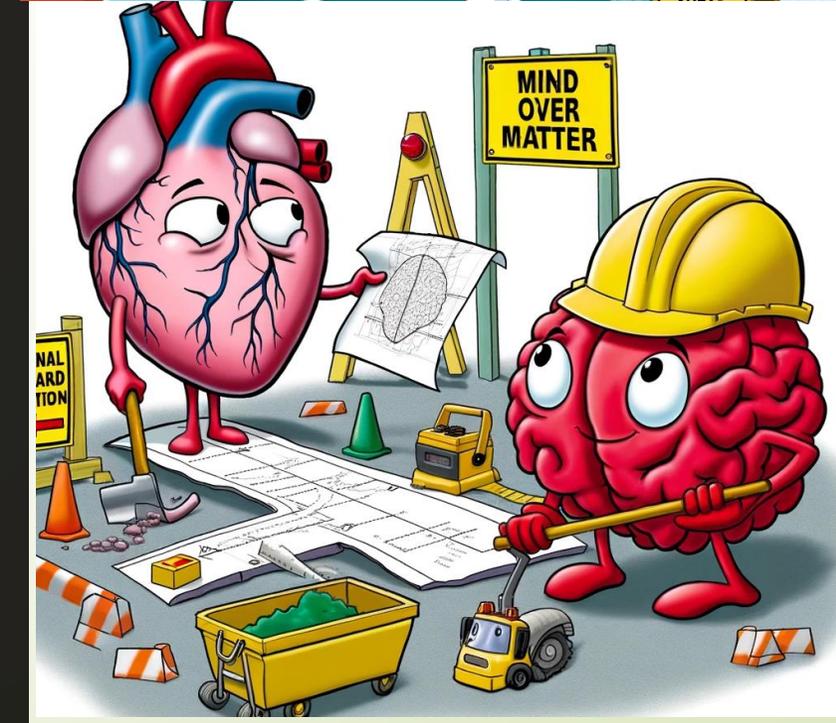
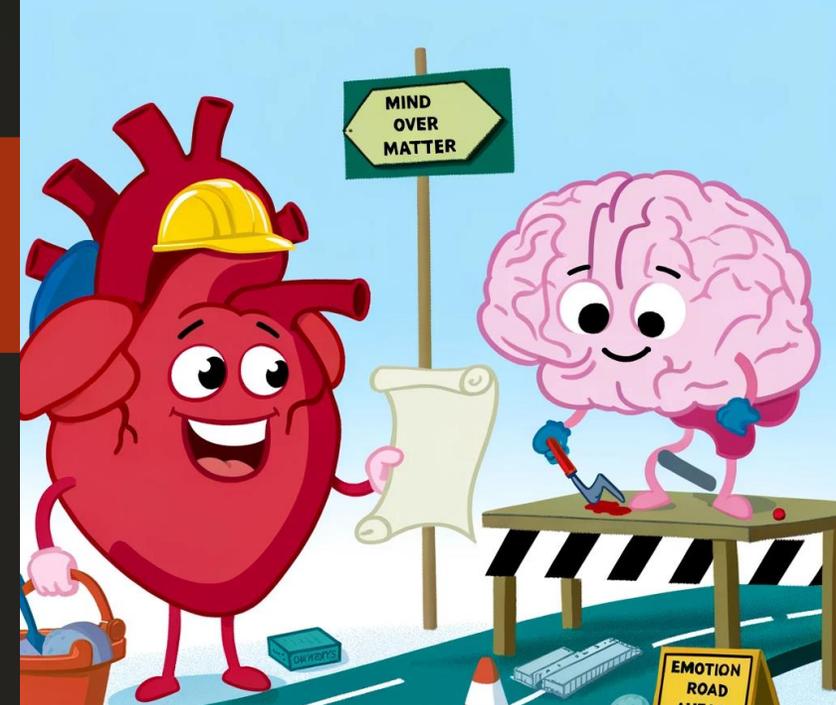
<https://youtu.be/Hir6I-RfOiY>

# Brain and heart working together

Gregg Braden notes that the discovery of the “little brain” in the heart, and the now-verified evidence that the heart has a certain capacity to think and remember, has led the way to amazing possibilities regarding the hidden power of the heart and what this can mean to our lives.

For 150-plus years we were led to believe that the heart and the brain were separate in an either-or manner. Scientists and analytical thinkers believed that the brain was the key while musicians, artists, and intuitive thinkers felt that it was the heart.

The evidence now suggests that it is the heart and the brain working harmoniously together that is fundamental (Braden, 2015a, 2015b).

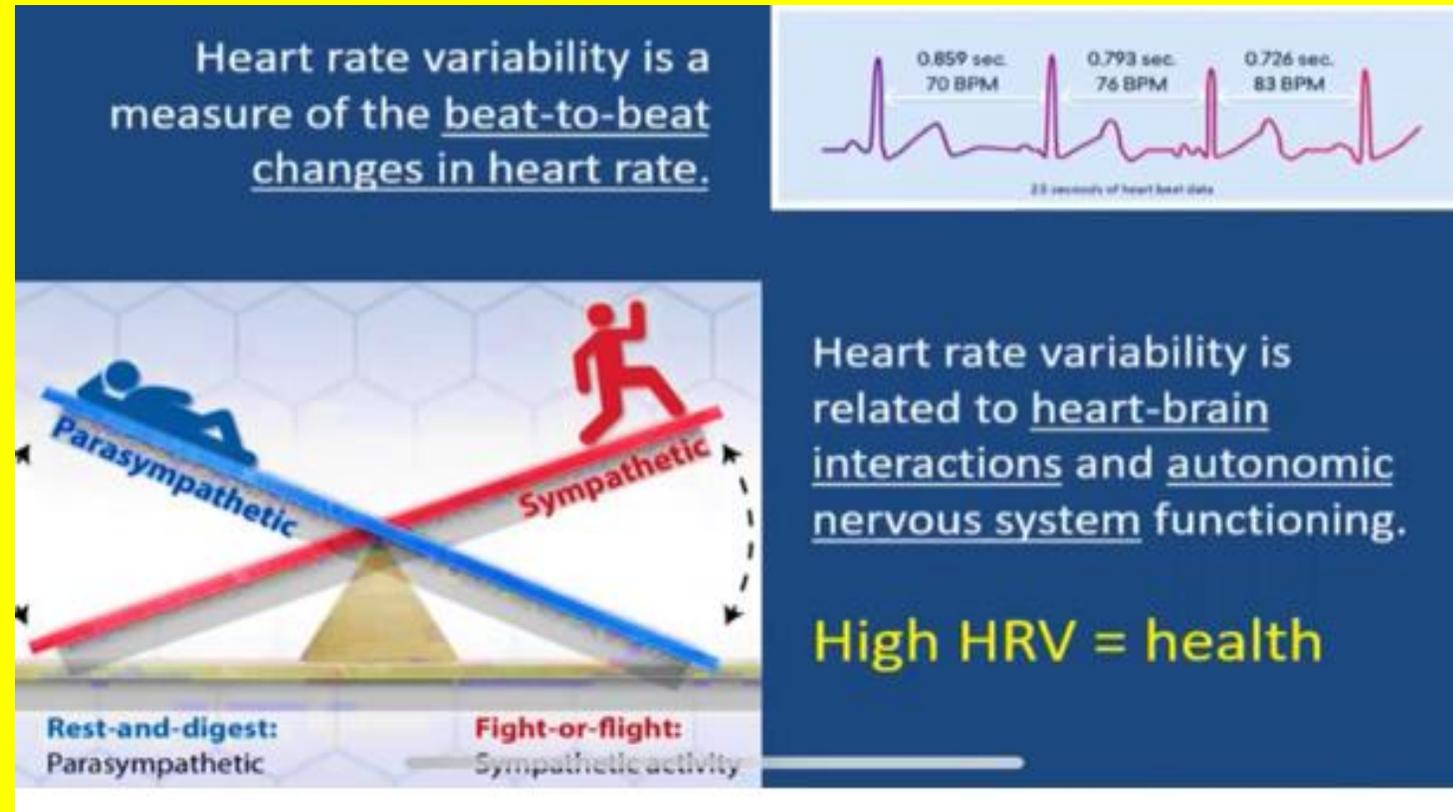


# Heart Rate Variability (HRV)

Psychophysiological, **Dr. Rollin McCraty**, director of research at the HeartMath Institute, and professor at Florida Atlantic University, notes that the heart at rest was once thought to operate much like a metronome, faithfully beating out a regular, steady rhythm.

Scientists and physicians now know, however, that this is far from the case. Rather than being monotonously regular, the rhythm of a healthy heart, even under resting conditions, is surprisingly irregular, with the time interval between consecutive heartbeats constantly changing. This naturally occurring beat-to-beat variation in heart rate is called **heart rate variability (HRV)**.

Heart rate variability is a measure of the beat-to-beat changes in heart rate. Above right graph shows three heartbeats recorded on an electrocardiogram (ECG). Note that variation in the time interval between consecutive heartbeats, giving a different heart rate for each heartbeat interval.



<https://www.heartmath.com/science/>

# Heart Rate Variability and Your Health

- According to the HeartMath Institute, scientists and physicians consider **heart rate variability (HRV)** to be an important indicator of health and fitness. As a marker of physiological resilience and behavioral flexibility, it reflects our ability to adapt effectively to stress and environmental demands. A simple analogy helps to illustrate this point: just as the shifting stance of a tennis player about to receive a serve may facilitate swift adaptation, in healthy individuals the heart remains similarly responsive and resilient, primed and ready to react when needed.
- Many factors affect the activity of the autonomic nervous system (ANS), and therefore influence HRV. These include our **breathing patterns, physical exercise, and even our thoughts.**
- Research at the HeartMath Institute has shown that one of the most powerful factors that affect our heart's changing rhythm is our feelings and emotions. When our varying heart rate is plotted over time, the overall shape of the waveform produced is called the heart rhythm pattern.

Please see: <https://www.heartmath.com/science/>

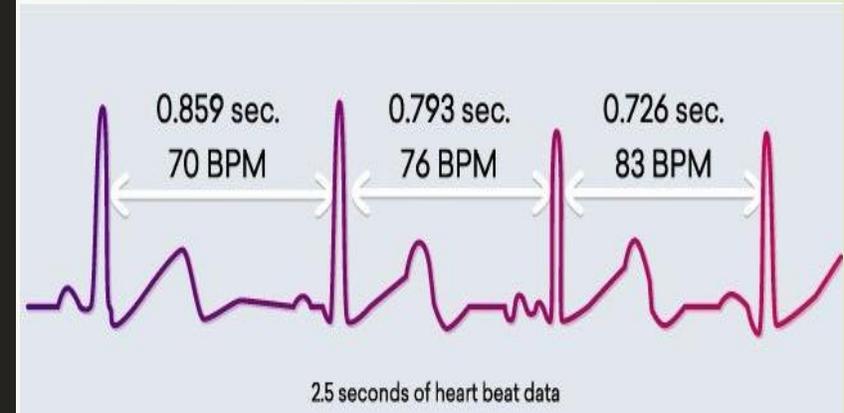


# Heart Rate Variability and Your Health

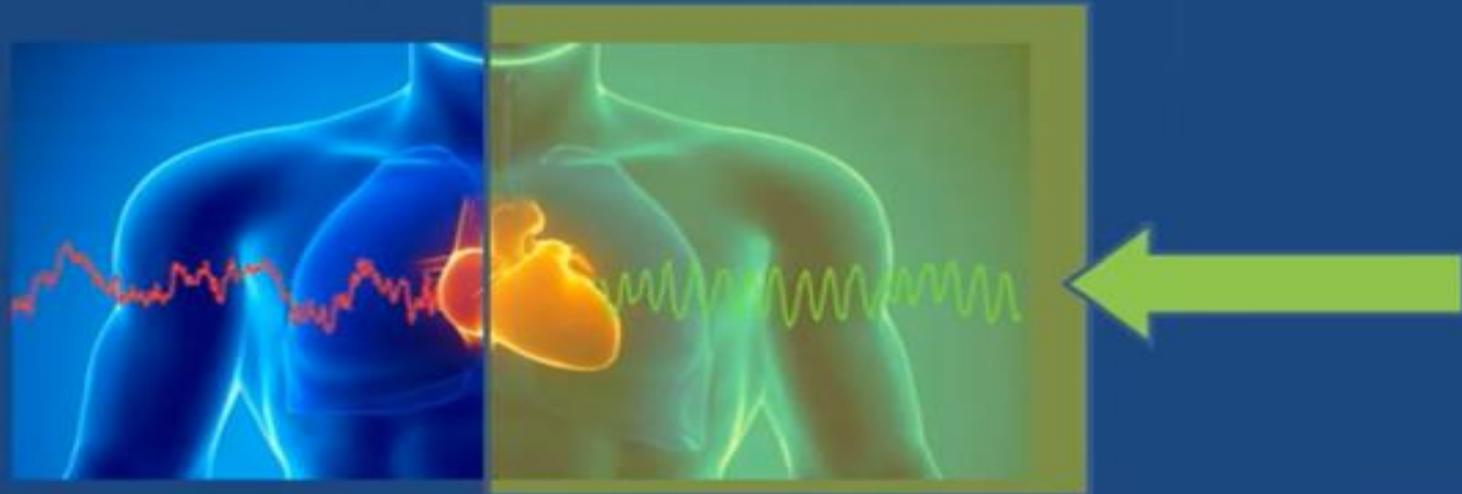
► Dr. McCraty asserts that the normal variability in heart rate is due to the synergistic action of the two branches of the autonomic nervous system (ANS)—the part of the nervous system that regulates most of the body’s internal functions. The **sympathetic nerves act to accelerate heart rate**, while the **parasympathetic (vagus) nerves slow it down**. The sympathetic and parasympathetic branches of the ANS are continually interacting to maintain cardiovascular activity in its optimal range and to permit appropriate reactions to changing external and internal conditions. The analysis of HRV therefore serves as a dynamic window into the function and balance of the autonomic nervous system.

► The moment-to-moment variations in heart rate are generally overlooked when average heart rate is measured (for example, when your doctor takes your pulse over a certain period of time and calculates that your heart is beating at, say, 70 beats per minute). However, the emWave and Inner Balance technologies allows you to observe your heart’s changing rhythms in real time. Using your pulse data, it provides a picture of your HRV—plotting the natural increases and decreases in your heart rate occurring on a continual basis.

<https://www.heartmath.com/science/>



# Heart Coherence



When heart rhythm has order, harmony, and stability.  
The sympathetic and parasympathetic branches are synchronized.



↑ ability to remember,



Efficient use of



Order & harmony in



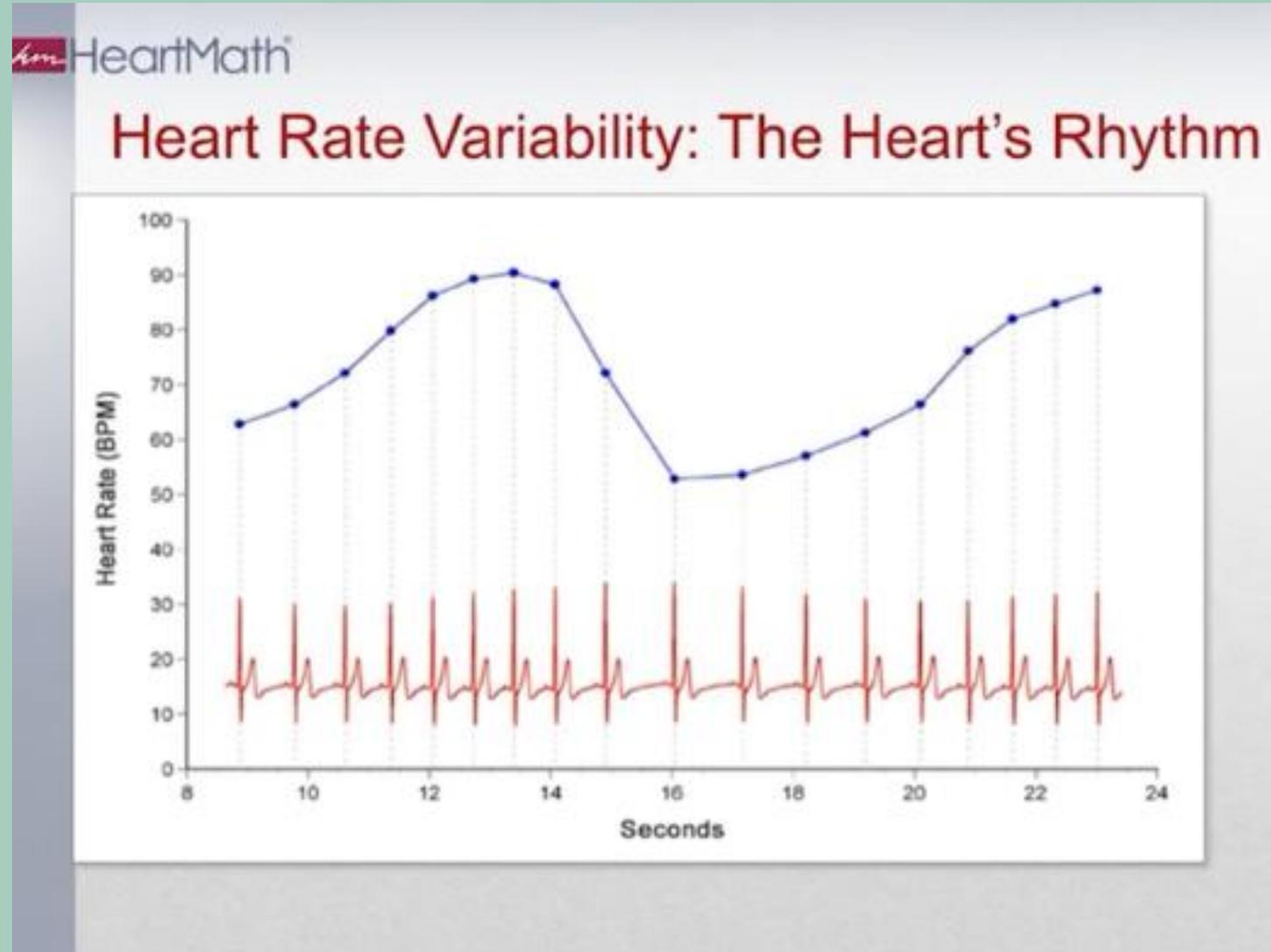
↑ emotional stability &

# Heart Rate Variability and Your Health

➤ These graphs show examples of real-time heart rate variability patterns (heart rhythms) recorded from individuals experiencing different emotions

➤ The bottom **red part** of the graph is simply the EEG reading of each pulse. Note that the intervals between the beats change with time. The upper **blue graph** reflects the collection of these intervals across time. This is the beginning of a sign wave that is read from people in a coherent heart state reflecting positive emotions.

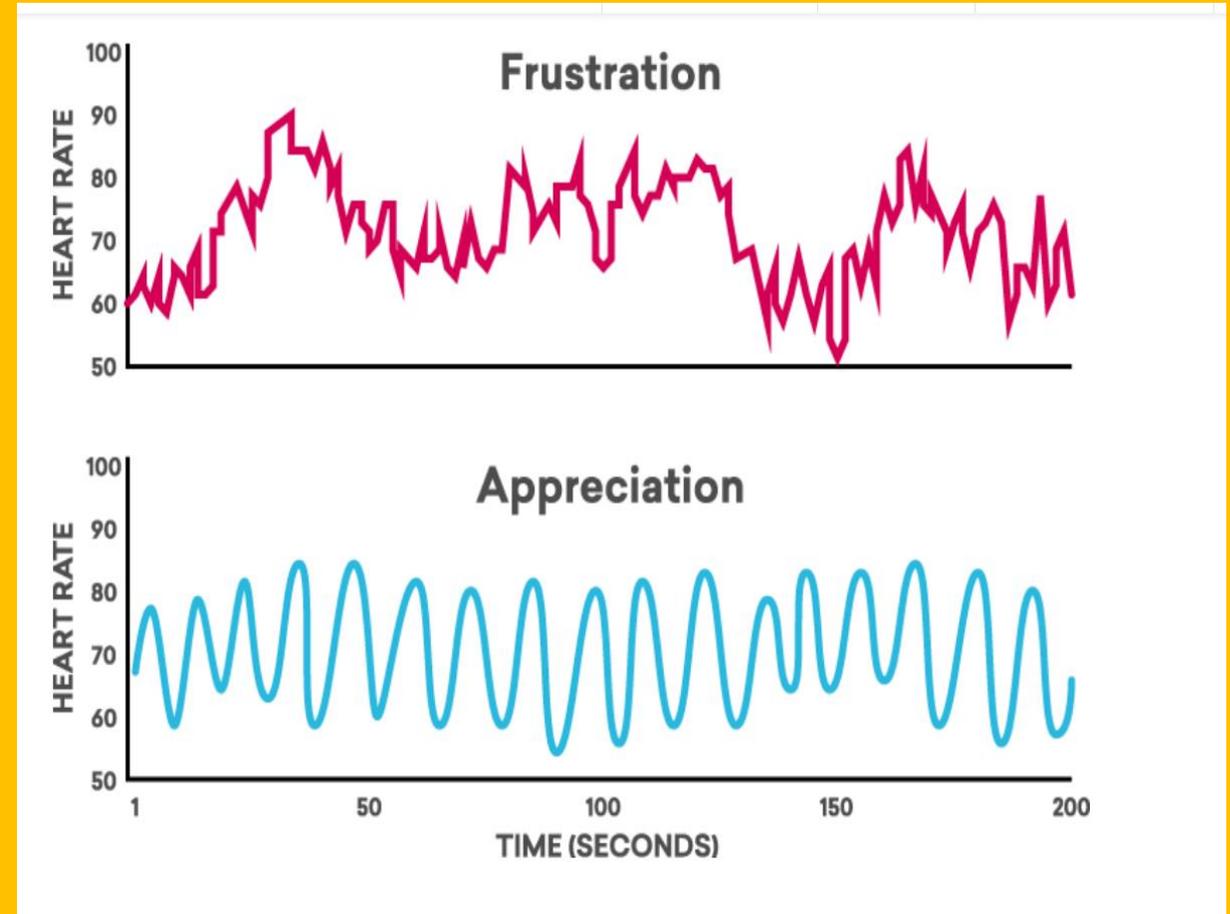
Click: <https://youtu.be/3Vh9qEbITOE>



# Heart Rate Variability and Your Health

The **incoherent heart rhythm** pattern shown in the top graph taken on a man who was asked to think about a stressful time in his life. The pattern characterized by its irregular, jagged waveform, is typical of stress and negative emotions such as anger, frustration, and anxiety.

The bottom graph shows an example of the **coherent heart rhythm pattern** taken on the same man who was taught a HeartMath relaxation technique. This pattern is typically observed when an individual is experiencing a sustained positive emotion, such as appreciation, compassion, or love. The coherent pattern is characterized by its regular, sine-wave-like waveform. It is interesting to note that the overall amount of heart rate variability is actually the same in the two recordings; however, the patterns of the HRV waveforms are clearly different.

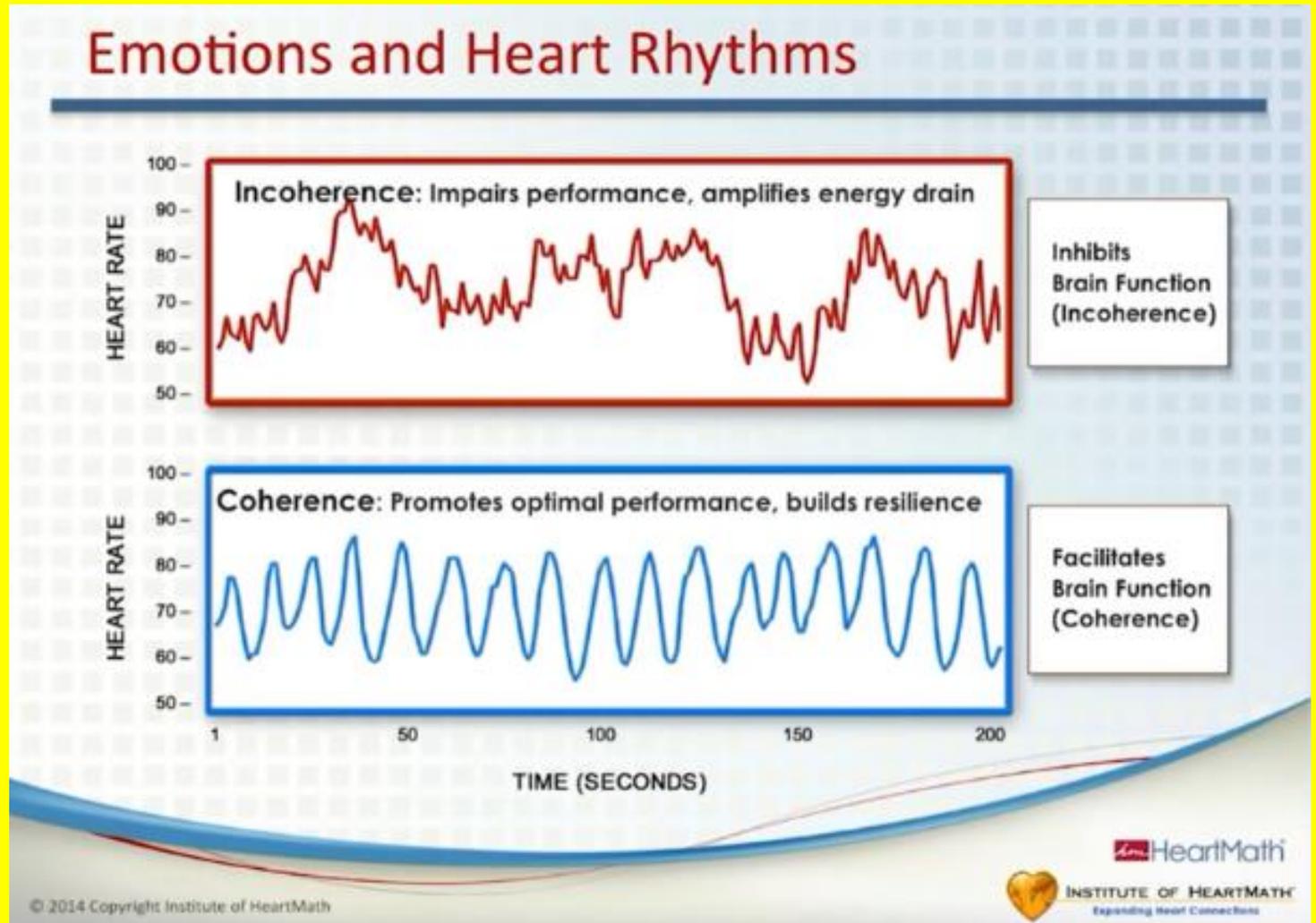


Click: <https://youtu.be/3Vh9qEbITOE>

# Heart Rate Variability and Your Health

► To elaborate on the previous slide, research from HeartMath reveals that **heart incoherence** inhibits brain function and detrimentally impacts on health while **heart coherence** enhances brain function and overall health.

Click: <https://youtu.be/3Vh9qEbITOE>



# Heart to Heart Impact on Others

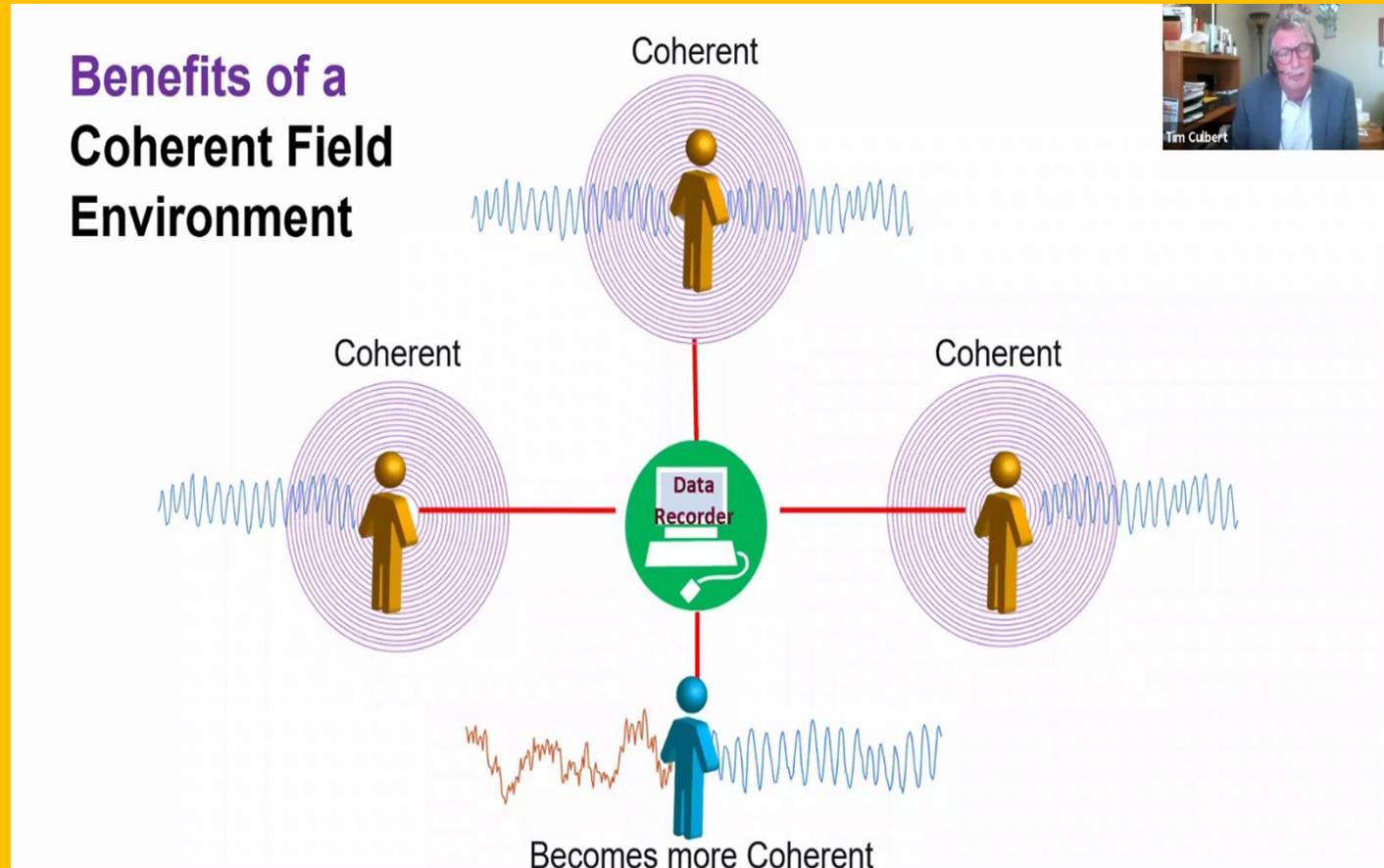
► McCraty in his excellent YouTube video:

[https://www.youtube.com/watch?v=MO3SGkl3B-I&ab\\_channel=QuantumUniversity](https://www.youtube.com/watch?v=MO3SGkl3B-I&ab_channel=QuantumUniversity)

cites a doctoral dissertation study that demonstrated to powerful impact that coherent heart states of one individual or individuals can have on another.

► In this study three people were trained two weeks prior on how to attain a relaxed coherent heartrate variability state. The fourth person was not trained and was simply asked to go sit with the three that were trained while they were playing a game of cards. They were all wired for cardiac monitoring.

► Within in a very short period, the fourth person's heartrate variability state became relaxed and matched the other three. This study design was replicated 10 times with the same results.



# A Boy and his Dog

Research at HeartMath has found that a type of heart-rhythm synchronization can occur in interactions between people and their pets. A lot of pet lovers can appreciate the results of an experiment

HMI Director of Research Dr. Rollin McCraty conducted with his then 15-year-old son, **Josh**, and the boy's dog, **Mabel**. He used electrocardiogram monitors to record heart-rhythm data when the pair were together and apart. The institute also has found that a type of heart-rhythm synchronization can occur in interactions between people and their pets.

Pet lovers can appreciate that we are truly connected to fido in a “heart-felt” way.

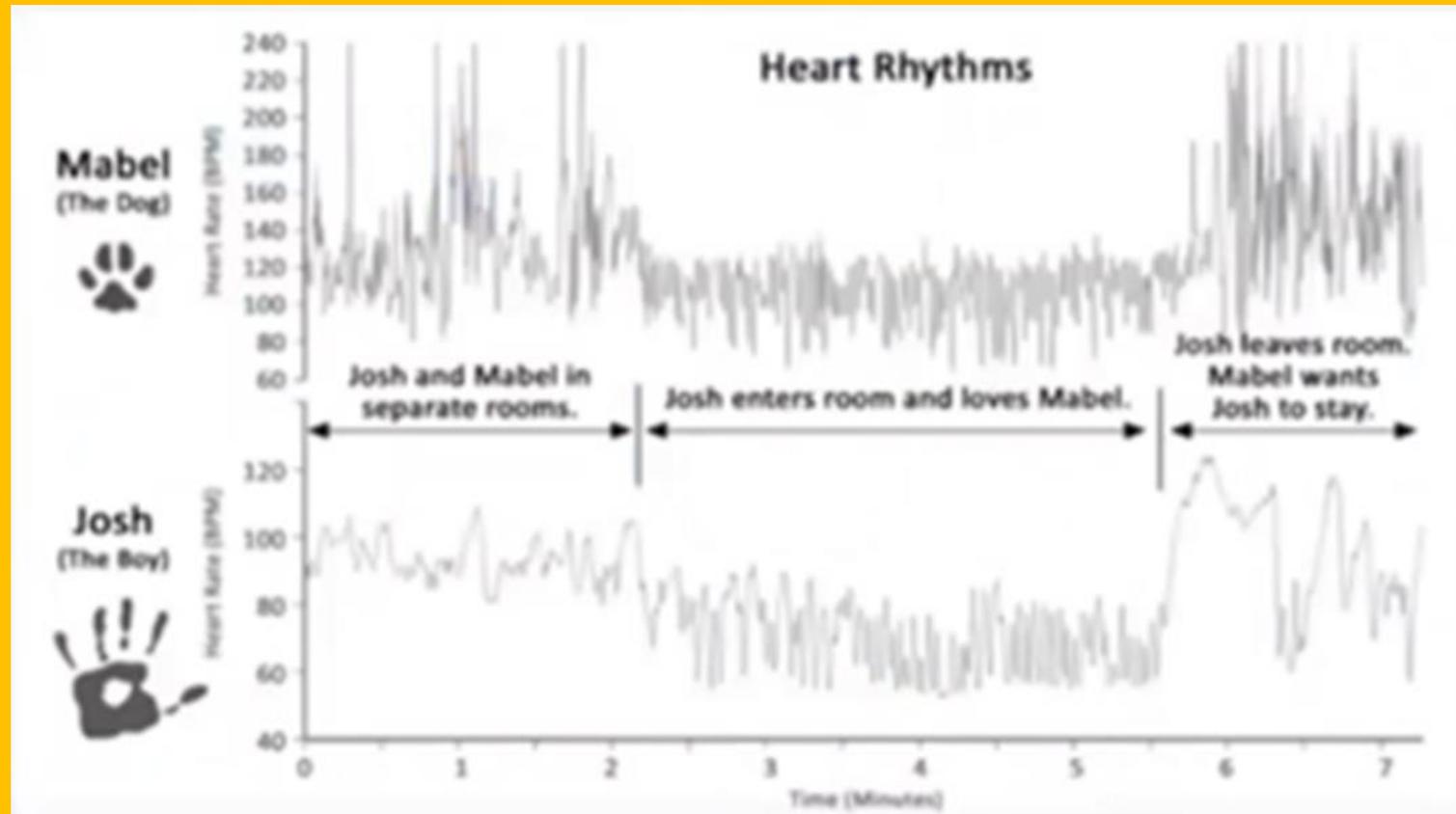




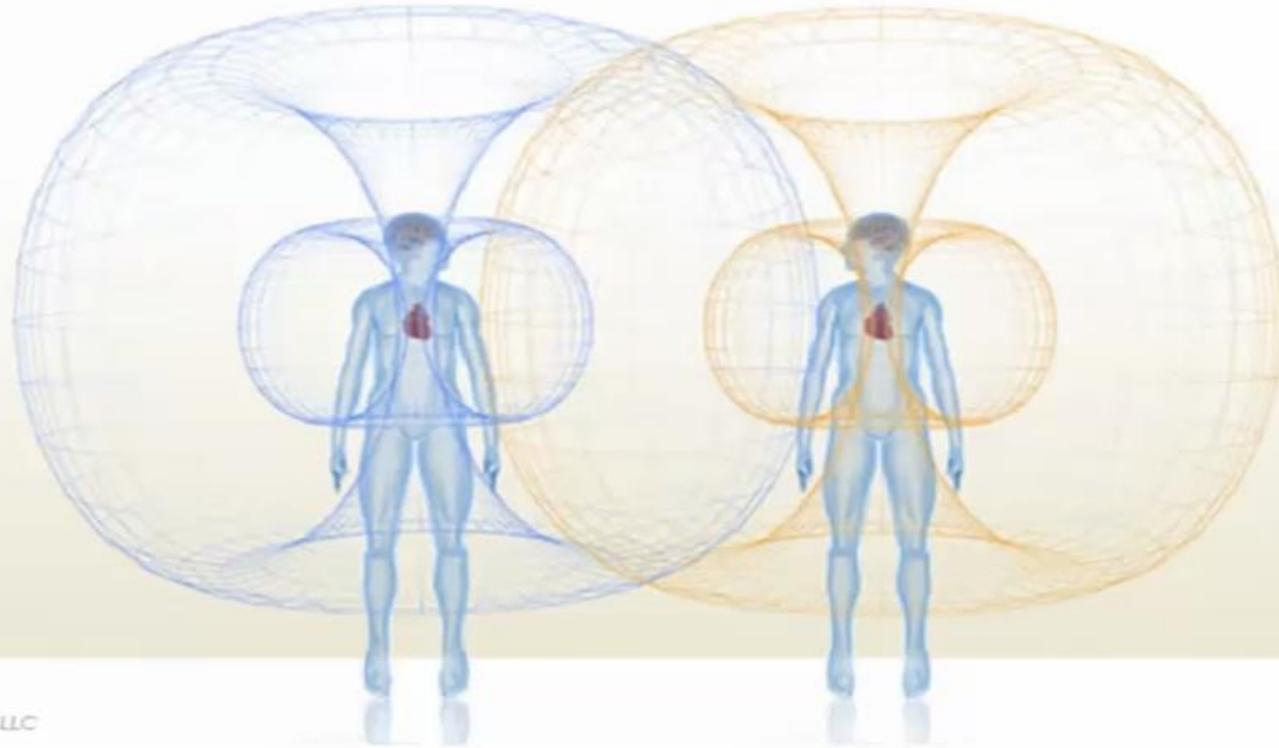
# A Boy and his Dog

► The top of the graph shows the dog's (Mabel) heart rhythm shift when the boy (Josh, shown in the lower part of the graph) entered the room, sat down and proceeded to consciously experience feelings of love towards Mabel.

► When Josh consciously **felt feelings of love and care** towards his pet, his heart rhythms became more coherent, and this change appears to have influenced Mabel's heart rhythms, which then also became more coherent. There was no physical contact between the dog and boy (Childre et al.,2016).



The heart radiates an electromagnetic field affecting each other's moods, attitudes and feelings—whether we are conscious of it or not.



# Heart-to-Heart

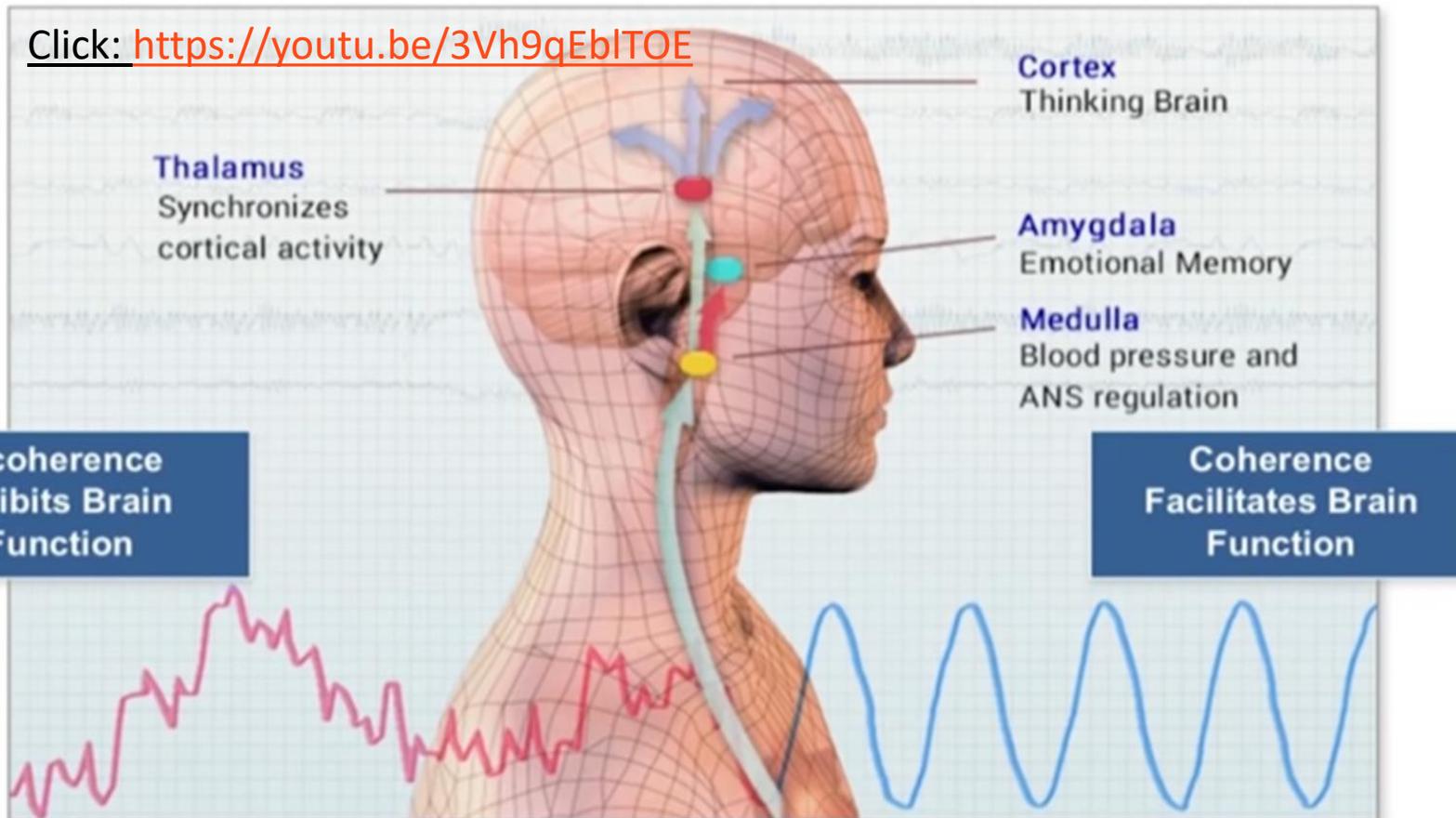
HeartMath asserts that our heart states can impact on others and most important, those we love.



# Heart-to-Brain

Heart signals affect the brain centers involved in emotional perception, decision making, reaction times, social awareness and the ability to self-regulate.

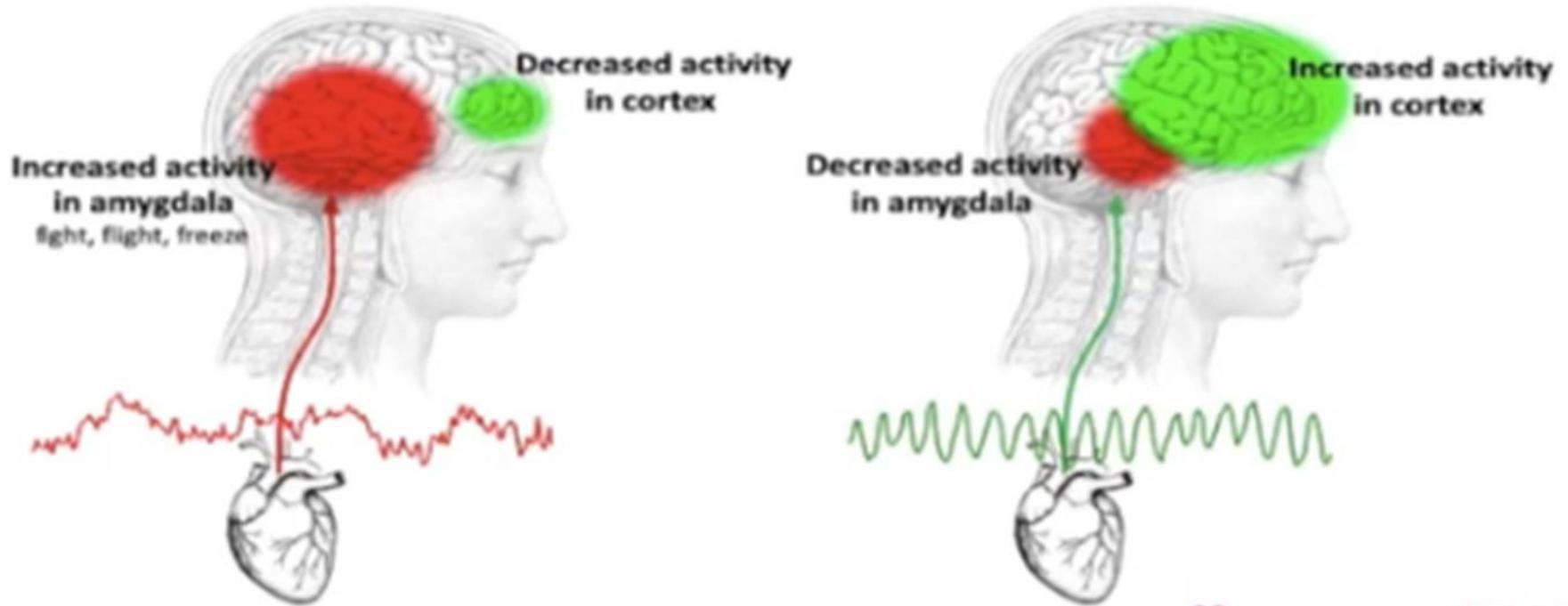
Click: <https://youtu.be/3Vh9qEbITOE>



Dr. McCraty notes that the heart communicates to the brain in **four main ways**: (1) nerves connecting the heart to the brain, particularly the vagus nerve, (2) hormones, (3) blood pressure shifts, and (4) electromagnetic waves.

When the heart is coherent, it sends messages to the brain that, likewise, promote brain coherence which allow the brain to be more integrated and efficient and, to the contrary, an incoherent heart inhibits cortical function.

# Heart rhythms and brain function



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The left slide nicely shows that when the heart is in a negative emotional state and, hence, incoherent, it sends signals to the brain that increase the activity of the amygdala (which tends to focus on negative emotion) to become very active and the prefrontal cortex (which we need of good decision-making) to attenuate.



On the other hand, when the heart is in a positive emotional state of love, appreciation and gratitude, and hence, coherent, it sends signals to the brain that quiet down the amygdala and increase the activity of the prefrontal cortex.

# Benefits of High Heartrate Variability (HRV)



Greater sense of well-being  
Better physical performance



Better cognitive performance  
Greater ability to reason wisely



Better sleep, relaxation, and recovery



Greater resilience, flexibility, and

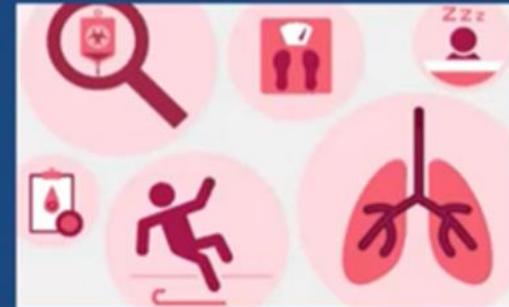
# Labilities of Low Heartrate Variability (HRV)



More tired and depressed



Limited adaptability to circumstances



More health problems and risk

# Heart Coherence Benefits

When one is in a coherent state, it reflects:

- ✓ Increased synchronization in higher-level brain systems and capacity to self-regulate behaviors.
- ✓ Increased parasympathetic activity (vagal activity).
- ✓ Entrainment between physiological rhythms.
- ✓ Coordinated activity in the two branches of the ANS.
- ✓ Increased heart-brain synchronization.
- ✓ Cardiovascular system resonance.

# Heart Coherence Benefits on Brain Networks

- Individuals with higher rate variability tend to have better emotional well-being than those with low heart-rate variability (including for example, lower levels of worry and rumination)
- One theory is that high amplitude oscillations in heart rate, enhance the functional connectivity of brain networks associated with emotional regulation
- Regular HRV biofeedback training can facilitate this positive change in HRV amplitude which in turn promotes resilience

– *Mather and Thayer. How Heart Rate Variability Affects Emotional Regulation Networks. Current Opinion in Behavioral Sciences. 2018. Volume 19. pp 98-104*

# Studies Showing Benefits of Coherence on Brain Function

- Increased ability to self-regulate (Bradley, 2010; Bedell 2010)
- 40% improvement in long-term memory (Lloyd, 2010)
- 24% improvement in short-term memory (Lloyd, 2010)
- Increased ability to focus (Lloyd, 2010; Ginsberg, 2010)
- Increased ability to process information (Ginsberg, 2010)
- Faster reaction times (McCraty, 2010)
- Higher test scores (Bradley, 2010)
- Improved ability to learn (Bradley, 2010)

# Studies Showing Benefits of Heart Coherence on Health

## Study Results

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- **Blood Pressure in Hypertensive Employees (Hewlett-Packard)**  
20% reduction in diastolic and systolic blood pressure. (McCarty, 2003)
- **Reduced Health Care Costs (Reformed Church in America)**  
Annual cost savings = \$585 per participant. (Bedell 2010)
- **Diabetes (LifeScan)**  
30% increase in quality of life metrics; 1.1% reduction in HbA1c. (McCarty, 2003)
- **Congestive Heart Failure (Stanford Hospital)**  
Increased functional capacity, reduced stress and depression. (Luskin, 2000)
- **Heart Arrhythmias (Kaiser Permanente)**  
75% of the patients had significantly fewer episodes of atrial fibrillation and 20% were able to stop medication altogether. (unpublished data)
- **Asthma (Robert Wood Johnson Medical School)**  
Over 50% of patients experienced a decrease in airway impedance, symptom severity and medication consumption. (Lehrer 2006)

# Low HRV and Mental Health

- Associated with lower self-regulatory capacity. Segerstrom, & Nes, Psychol Sci, 2007. 18(3): p. 275-81; Reynard, et al., Appl Psychophysiol Biofeedback, 2011. 36(3): p. 209-15.
- Low prefrontal cortical performance and ability to inhibit unwanted memories and intrusive thoughts. Thayer, et al., Ann Behav Med, 2009. 37(2): p. 141-53.
- Difficulties in emotion regulation. Williams, et al., Front Psychol, 2015. 6: p. 261.
- Emotion regulation and impulse control. Koenig, et al., Progress in Neuro-Psychopharmacology and Biological Psychiatry, 2015.
- Anxiety disorders. Chalmers, et al., Front Psychiatry, 2014.
- Depression. Agelink, et al., Psychiatry Res, 2002. 113(1-2): p. 139-49.
- Poor social engagement, emotion regulation and anger management. Geisler, et al., Biol Psychol, 2013. 93(2): p. 279-86.
- PTSD. Shah, et al., Biol Psychiatry, 2013. 73(11): p. 1103-10.
- Appears to also be associated with early childhood trauma. Shonkoff, Boyce and McEwen. JAMA. 2009. 301(21): pp2252-9

# Clinical Applications of HRV

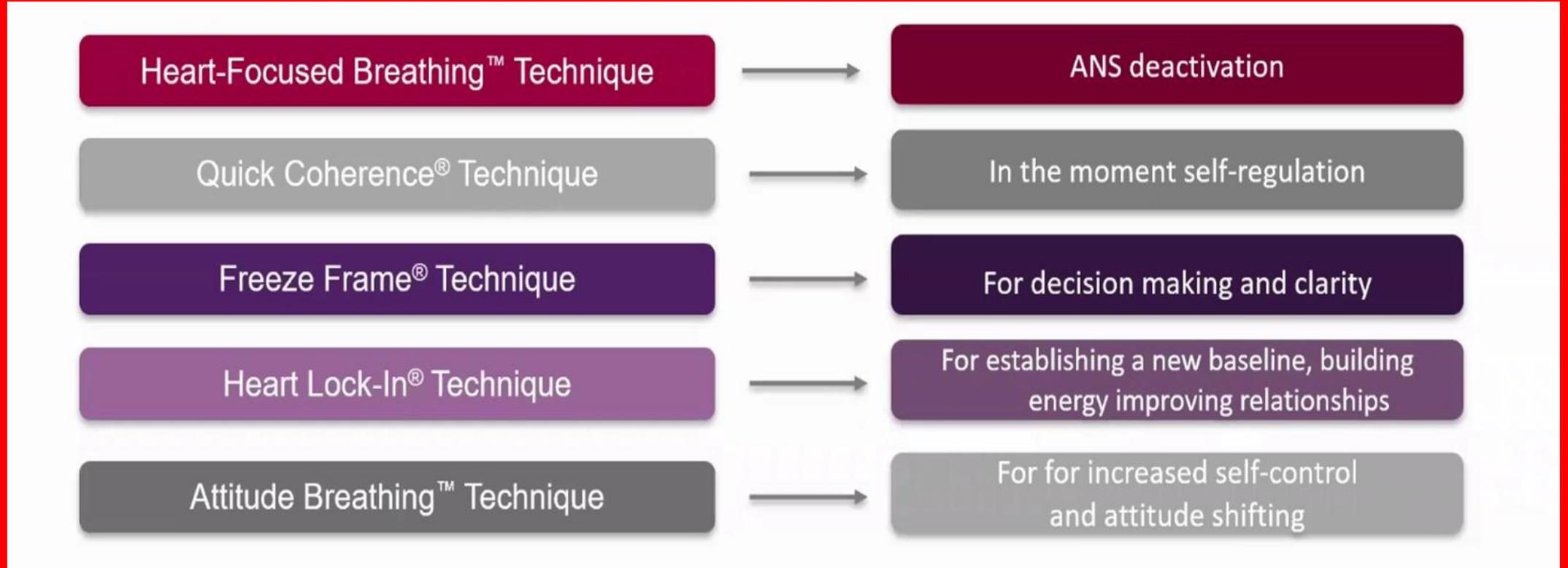
- Health risk assessment: determine those at increased risk of developing various pathologies often before symptoms become manifest.
- Support psychological health assessment – self-regulatory capacity.
- Detect abnormalities and imbalances in the autonomic nervous system.
- Assesses the effects of various interventions on autonomic function.
- Indicate changes in fitness levels.
- Indicate nervous system aging rate.
- Assess moment-to-moment changes in autonomic function due to interventions or changes in mental or emotional states or stress (Psychophysiological Profile).
- HRV Biofeedback to facilitate self-regulation skill acquisition, performance and cognitive functioning.

# Applications



- HeartMath has developed simple and practical ways to benefit from the breakthroughs in understating the neuroscience of **Heart Rate Variability** as it relates to sound mental and physical health.
- The following slides offer five of the main techniques. The value of these techniques is that they are relatively simple and do not take inordinate amounts of time to begin benefiting from them.
- Additionally, HeartMath has developed training devices for facilitating learning and application in our daily lives.

# HeartMath Self-Regulation Techniques



➤ Researchers at HeartMath have developed five main self-regulation strategies each with its own purpose. These techniques build on one another so it is best to master the top ones before going onto the next.

# Heart-Focused Breathing Technique

—for Autonomic Nervous System Deactivation/establishing calmness

## Heart-Focused Breathing• technique

### What it does:

- Creates coherence - balances your ANS, activates prefrontal cortex.
- Reduces stress reaction (including Adrenaline and Cortisol).
- Shifts you from unpleasant emotions into a more neutral emotional space.
- Reduces allostasis, promotes homeostasis.

## Heart-Focused Breathing• technique

### How to do it (eyes open, in the moment, any situation):

- Focus your attention in the area of your heart.
- Imagine your breath is flowing into and out of your heart or chest area, breathing a little slower and deeper than usual.

Suggestion: Breathing in for 5 seconds and a longer exhalation of about 7 seconds accentuates relaxation. But whatever pace you like is okay. Everyone has their unique pace.

Click here for a demonstration video:

[https://www.youtube.com/watch?v=JxNjw3bcfVo&ab\\_channel=TheWholeMD](https://www.youtube.com/watch?v=JxNjw3bcfVo&ab_channel=TheWholeMD)

# Quick Coherence Technique

- for in the moment self-regulation

Step 1: Focus your attention in the area of the heart. Imagine your breath is flowing in and out of your heart or chest area, breathing a little slower and deeper than usual.

*Suggestion: Breathing in for 5 seconds and a longer exhalation of about 7 seconds accentuates relaxation. But whatever pace you like is okay. Everyone has their unique pace.*

Step 2: Make a sincere attempt to experience a regenerative feeling such as appreciation or care for someone or something in your life.

*Suggestion: Try to re-experience the feeling you have for someone you love, a pet, a special place, an accomplishment, etc. or focus on a feeling of calm or ease.*



Click here for an excellent how-to video by Dr. Deborah Rozman:

[https://www.youtube.com/watch?v=sKmKKCdnJ4U&ab\\_channel=HeartMath](https://www.youtube.com/watch?v=sKmKKCdnJ4U&ab_channel=HeartMath)

# Freeze-Frame Technique

- for clarity and decision-making

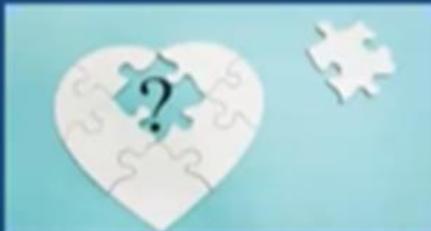
► It is a one-minute technique that allows a major shift in perception. More than positive thinking, it creates a definitive, heartfelt shift in how we view a situation, an individual or ourselves. Very helpful for establishing **clarity** and promoting **decision-making**.



1. Shift out of your head and focus your attention on your heart for at least 10 seconds. Breathe normally.



2. Recall a positive time or feeling you had in your life, and attempt to reexperience it and feel it fully.



3. Ask your heart:  
"What can I do in this situation to make it different?"  
"What can I do to minimize stress?"



4. Listen to what your heart has to say in response to your question.

# Heart Lock-in Technique

- for establishing a new baseline, build energy, and/or improve relationships



Step 1. Focus your attention in the area of the heart. Imagine your breath is flowing in and out of your heart or chest area, breathing a little slower and deeper than usual.



Step 2. Activate and sustain a regenerative feeling such as love, appreciation, care or compassion.



Step 3. Radiate that renewing feeling to yourself and others.

Gregg Braden's Excellent Meditation:

<https://www.youtube.com/watch?v=SLTlg0B-LsQ>

# Attitude Breathing Technique

- for increased self-control and attitude shifting



**STEP 1. Recognize** a feeling or attitude that you want to change.

**STEP 2. Identify** a replacement attitude, then breathe the feeling of the new attitude slowly and casually through your heart area. Do this for a while to anchor the new feeling.

UNWANTED FEELINGS & ATTITUDES	REPLACEMENT FEELINGS & ATTITUDES
Stressed	Breathe Neutral
Anxious	Breathe Calm
Overwhelmed	Breathe Ease and Peace
Bored	Breathe Responsibility
Judgmental	Breathe Tolerance
Fogged/Confused	Breathe Neutral for Clarity
Angry/Upset	Breathe Neutral to Cool Down
Fatigued	Breathe Increased Energy
Shame/Guilt	Breathe Self Acceptance and Forgiveness
Financial Worries	Breathe Abundance
Isolated/Lonely	Breathe Being Connected and Appreciated
Rebellious	Breathe Respect
Self-pity	Breathe a Feeling of Dignity and Maturity

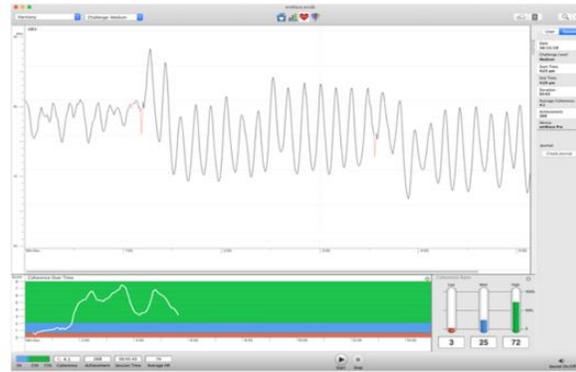
Click here for a demonstration video: <https://vimeo.com/241211966>

# HeartMath HRV Training Devices

- ▶ HeartMath has developed easy to used and relatively inexpensive biofeedback devices to assist in the application of the neuroscience of HeartMath principles into our daily lives.
- ▶ Please visit their website for more information on how you might obtain the best device for your needs:  
<https://www.heartmath.com/tech/>

☰ +❤️ HeartMath.

emWave Pro®



emWavePro for professionals. USB module with pulse ear sensor and multi-user software for Mac/Windows

☰ +❤️ HeartMath.

Handheld and  
Desktop Solutions

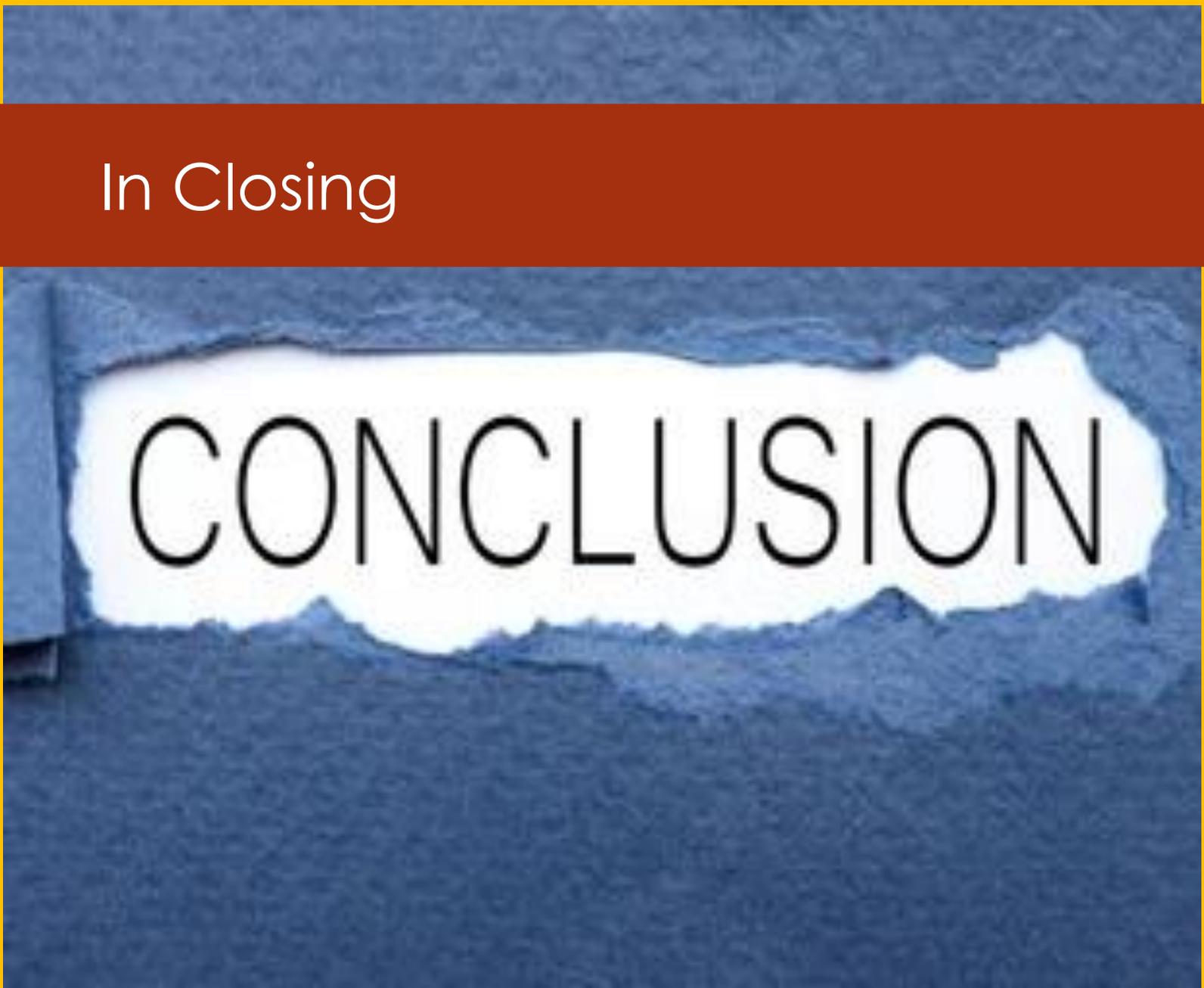
Prefer to practice off your  
Smartphone?

emWave2®



emWave2 standalone handheld device with wired ear sensor and software for Mac/Windows

## In Closing



CONCLUSION

► So, we have come a very long way from traditional medicine based on the philosopher Democritus and scientist Sir Isaac Newton, The Newtonian model is giving way to the Quantum model and with it we are appreciating the impact of the wave/energy of the heart and mind. We owe a great debt to the brilliance and courage of the likes of Gregg Braden, Joe Dispenza, Bruce Lipton, Rollin McCraty, Deborah Rozman, Doc Childre, Howard Martin and countless others on the HeartMath team. They have changed my life for the better and it is my hope that you might, likewise, find the healing benefit that they offer to humanity as a gift.





*To find out more  
about the benefits of HeartMath<sup>®</sup>  
Coaching, speak to us today!*

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