New Edition

The Inside Story



The Heart-Brain Connection and How We Perceive the World



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HeartMath® Institute

14700 West Park Avenue
Boulder Creek, California 95006
www.heartmath.org

They are very fast, even faster than thoughts. They're invisible – we can't see them and often don't even know they exist. At other times, they're as loud as a thunderstorm booming inside us, visible on our faces and in the way we move. Without them, we can't enjoy food, have fun with friends, or feel the stir of music.

What are they? Our feelings and emotions!



1 Riding the Wave

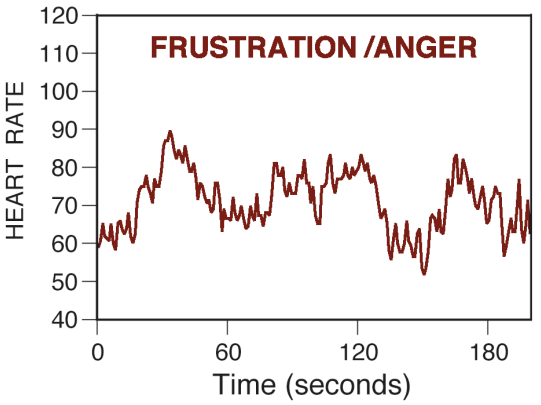
The word "emotion" can be defined as "energy in motion." An emotion is a feeling – a feeling such as joy, love, sorrow, or anger – that *moves* us. The experience of emotion makes life matter. It transforms our world from a series of events and facts into a living, breathing experience. For instance, you've had a rotten day, you come home and your dog is wildly wagging his whole body because he loves you no matter what. Just seeing him, you start to ease up on yourself and forget about your awful day.

You may not always be aware of your deeper feelings and how they are affecting your body, energy, thoughts, and relationships, but they do. You might notice tension or an upset stomach. Sometimes, you might even feel your heart pounding in your chest.

In fact, one of the easiest ways that scientists observe how feelings affect our bodies is in the effects they have on our heart rhythms. Emotions can be detected in the changing pattern of our heart rhythms.

When people are frustrated, scared, worried, angry, or upset, their heart rhythms are uneven and irregular – incoherent and out of sync. When these uneven, irregular heart rhythms are viewed on a computer screen, they look like jagged mountain peaks.

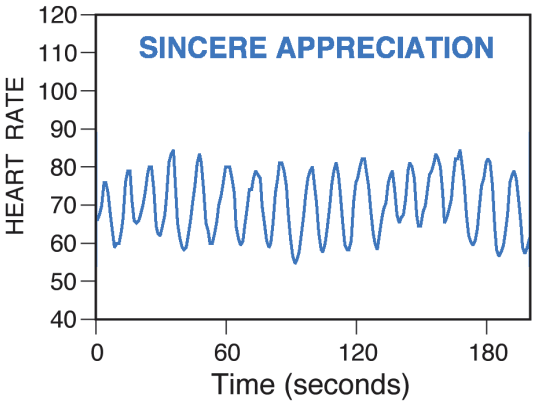
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The graph to the left shows changes in the heart rate pattern. The random, jerky pattern is typical when we feel anger, frustration or out of sync.

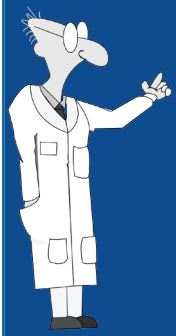
When we feel upset, it's usually hard to think clearly. Making a wise choice is tough for anyone when they are emotionally upset. Have you ever said something to a friend in a moment of anger that you later regretted?

However, when we feel calm, confident and secure, cared for, or appreciating someone or something, our heart rhythms are smooth and in sync like the ones in the diagram below. Scientists now know that the heart and brain are connected and that smooth even heart rhythms make it easier to think clearly and make better decisions.



This graph shows changes in the heart rate pattern that are typical of feelings of appreciation and other positive feelings. It is what scientists call a highly ordered or coherent pattern, which is an optimal state for health and learning.

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DID YOU KNOW?

In recent years, scientists have discovered that the heart has its own independent nervous system—a complex system referred to as "the brain in the heart." This system receives and relays information back to the brain in the head, creating a two-way communication between heart and brain.

This short book is designed to give you the inside story on emotions. You will get basic information on how different parts of your brain function and work together, how emotional memories affect your behavior, how your emotions and nervous system are related, and how your heart and brain talk to each other. These facts will help you see why it is important to learn to manage your emotions.

Wouldn't it be great to learn to ride the waves of emotion, instead of letting them engulf you or knock you over? For many people, emotion is something that just happens to them. But what you'll learn in this booklet is that it's possible to take charge of your emotions. As you become skilled at this, you will feel better on the inside and become more self-confident, successful, and satisfied in what you do and in your relationships with others.



As you learn to ride the waves of emotion, you will have more of a sense of adventure, confidence and playfulness that gives life that extra sparkle. You'll also find yourself thinking clearly more of the time. The **Freeze Frame® Technique** taught in this booklet will be a key for you.

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Remember a time you wish you could have managed your emotions better and then write about it.

2 The Three-Part Brain: A Model for Understanding

Before we dive in, it's important to know that what you're about to learn is a simplified model—like a map that helps you find your way, but isn't exactly the same as the real place. Scientists once thought the brain evolved in three separate layers (called the "triune brain theory"), but newer research shows this isn't quite accurate. The brain is actually much more interconnected, with many areas working together in networks all the time. However, this three-part model is a helpful learning tool because it makes it easier to talk about different kinds of brain activity, such as instinctive reactions, emotions, and logical thinking, even though these involve many brain regions at once—not just one "part." This model is helpful in developing an understanding of the brain, even if the real picture is more complex. In this section, we'll use this three-part model to explore how different kinds of reactions show up in your life—like quick survival responses, strong emotions, and careful thinking.

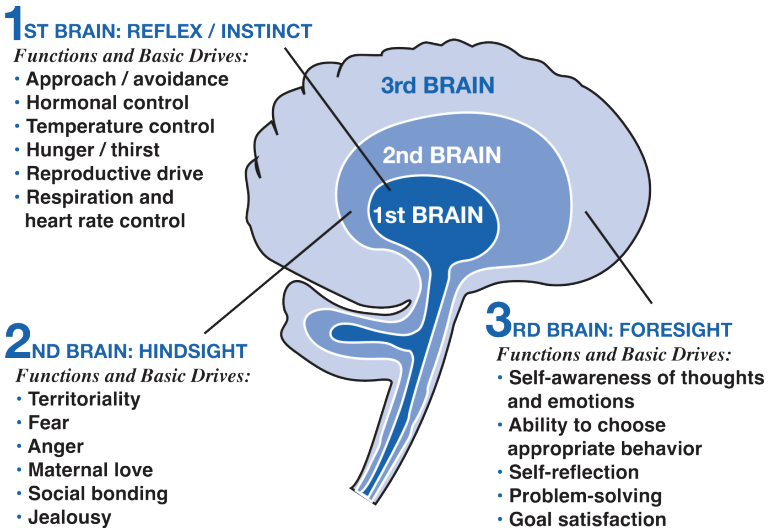


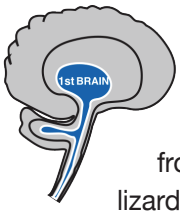
DID YOU KNOW?

Modern brain imaging shows that when you're thinking, feeling, or acting, multiple brain regions light up and work together —not just one 'part' of the brain!

The human brain is made up of many layers built around a central core. The diagram on the next page shows the brain divided into three main parts. Some people refer to these sections as simply the 1st, 2nd, and 3rd brains.

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1st Brain

The 1st brain controls your instincts, reflexes, and basic physical functioning. Amphibians (for example, frogs and salamanders), reptiles (such as alligators, lizards, and snakes), and birds of all kinds have only this part of the brain. They act and behave mainly from their instincts. The 1st brain cannot solve math problems, but without it we could not survive.

Our instinctual awareness of danger comes from this brain level. When we are hungry or thirsty, the survival instincts of the 1st brain will let us know and cause us to eat or drink. If this were the only brain level you had, instead of standing in a lunch line when you're hungry, you would rush to the food, pick it up, and gulp it down.

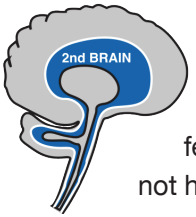


DID YOU KNOW?

Mice are born with an automatic avoidance of cats. It's instinct! This is an example of a first brain basic drive.

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Think of an example of a time you acted from your 1st brain.



2nd Brain

This part of the brain is involved in many of our feelings and emotions. Without this brain, we could not have a sense of sadness or joy.

Anger, fear, territoriality (protecting our turf), as well as feelings of security, pleasure, and the joy of bonding with others are examples of the feelings the 2nd brain helps to make possible. Many animals, such as dogs and cats, have this brain level as well.

This part of the brain gives us memory of past events. When you and a friend see each other, memories of your last conversation and how you feel about each other are available to you because of the structures and circuits in the 2nd brain that store those memories.

The 2nd brain also makes it possible for us to have *hindsight.* This means that we can learn from our past mistakes and successes.

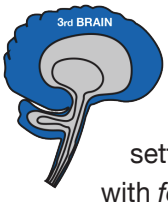
DID YOU KNOW?

- The adult human brain weighs about 3 pounds.
- Bottle-nosed dolphin's brain: about 3 1/2 lbs.
- Elephant's brain: about 13 lbs.
- Cow's brain: about 1 lb.
- Great white shark's brain: about 1.2 oz.
- Cat's brain: about 1 oz.



Think of an example of a time you acted from your 2nd brain.

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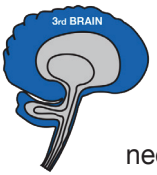


3rd Brain

The 3rd level of the brain, sometimes called the *cortex*, is involved in thinking, problem-solving, goal-setting, and planning. This part of the brain provides you with *foresight,* an important ability that allows you to see ahead and consider the consequences of your decisions before acting on them. This gives you a big advantage over the 2nd brain, where unmanaged emotions can push you to act without considering future results. The 3rd brain also monitors the 2nd brain's activity and allows you to name and sort out your feelings and emotions. It can then help you decide what the best course of action may be for any situation.

For example, a comment from a classmate or co-worker offends you, and you feel hurt or angry. You have to decide how you will respond. The 3rd brain reviews several possibilities: seek revenge, try to talk and resolve the conflict, let it go, forgive, or consider other options. It is the ability to understand the situation from many angles that can lead to a more intelligent decision and action. The 3rd brain can also help you notice when you are acting against what you feel is right. Some call this being aware of your *conscience.*

Think of an example of a time you acted from your 3rd brain.



How the Three Brains Work Together

While all three brain levels interact all the time, if you want to use all of the abilities available to you, all three need to work together in harmony. In other words, they have to be in sync with one another. However, this is not always the case. Often we rely too much on one brain level.

For example, when we act mainly from the 1st brain, we react from instinct alone with no thought given to the consequences. When this happens we do not consider how someone else may feel, and our action or words may get us into trouble.

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At other times, we may act primarily from the 2nd brain. In this case, unmanaged emotions can play too strong a role in our decisions and behavior. We can keep worrying about something that really doesn't matter or get angry over a situation when we don't have all the facts.

For example, rumor has it that your boyfriend said something about your best friend that wasn't true. If you'd bother to ask what he really said, you might find out that it wasn't what he said at all. Sometimes, we get mad first and ask questions later.



If the 2nd and 3rd brains are not working together well, we may not even know what we are feeling, yet the feelings can drive our actions and affect our thoughts and decisions.

For instance, with your 3rd brain you know you need to work on your science report, but you choose to watch TV instead.

An important aspect of maturing is getting the 2nd and 3rd brains to work together harmoniously. The 2nd brain involves acting on our impulses and emotions, sometimes without much awareness of how our feelings are affecting us. The 3rd brain allows us to gain more power to control our impulses and emotions. We see more clearly what's meaningful to us in life and make more of our choices based on these values.

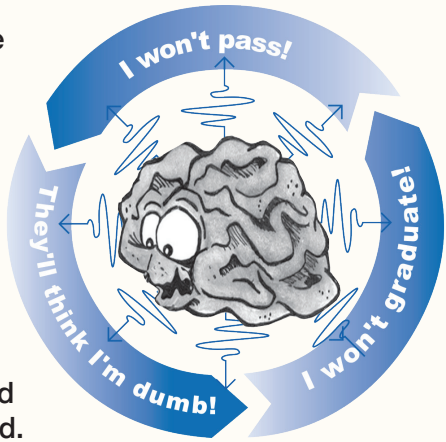
As we've already said, the 3rd brain provides foresight that allows us to see ahead, so we are able to consider the consequences of our decisions before acting. However, when we are operating mostly from the 3rd brain, we can get trapped in **"looping thoughts"** that lead to excessive worry and anxiety.

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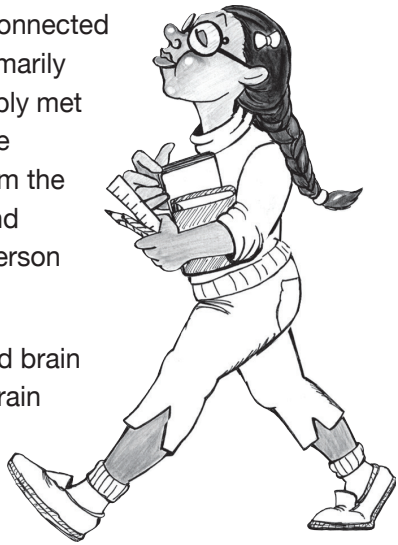
What are "looping thoughts?"

Thoughts that loop are the ones that keep coming up over and over again. We just can't seem to get rid of them. They can trigger feelings of fear and insecurity.
Below are some examples.

- I'll never pass the test.
- I'll never get a date —I'm not good at talking to people.
- I'll never get all this done.
- I don't know all I need to know for the test.
- I can't believe I said that. I feel so stupid.



Some people can become disconnected from their emotions and operate primarily from the mind's logic. You've probably met people like this who can overanalyze everything! But operating mainly from the mind can lead to a lack of feeling and emotional experience – and rob a person of joy and deep friendships.



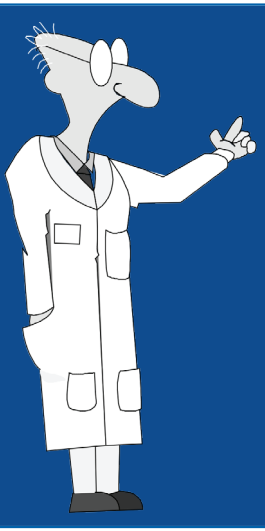
It is also now known that the 3rd brain needs the feeling parts of the 2nd brain in its decision-making processes when choosing appropriate actions and behaviors – for instance,

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the right thing to say in a social situation and the right time to say it.

It just makes sense that the brain would need more than pure logic to make wise choices.

We need to have good communication between our emotional and logical centers to be able to recognize and understand what others are feeling and how our behaviors are affecting them, a skill that is critical for making and keeping friends.



DID YOU KNOW?

There is an average of 100 billion neurons in the human brain. Each neuron or nerve cell is connected to other nerve cells in the brain by sometimes hundreds or even thousands of connections, called synapses. It is estimated that there are over 1,000,000,000,000,000 (that's a quadrillion) connections in the brain, more connections than there are stars in the universe.

3 Emotional Memories

Memories of how people have felt in the past are processed in the *amygdala* (ah-MIG-dah-la), an almond-sized structure located in the 2nd brain.

Emotional memories can cause people to react automatically – based on things that happened in the past. Many of these reactions, however, may not be appropriate for the current situation.

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Here's why...

Emotional memories can be triggered by something that is happening in the present that is similar to something that happened in the past. The feeling pops in so fast that the 3rd brain doesn't have time to think about what's different. Without thinking, we just react – for example, we get upset, scared, angry, or nervous – with feelings that are *"triggered"* by the memory of a past situation.

When people feel a strong emotion, the amygdala remembers it, along with many other details connected with the event, even things that are indirectly related to the event can trigger the old feeling without our even being aware that this is happening. The amygdala takes in all kinds of impressions like sights, smells, tastes, and sounds and uses a *"fast track circuit"* to try to find a match with something that happened before.

For example...

Let's say you can't stand the smell of fresh asphalt. This may be because you had a bad crash on your bike on fresh asphalt when you were younger. You may or may not even remember the crash, but your amygdala does, and it links that smell with the crash.

Here's another example...

A boy was bitten by a dog when he was young. The bite hurt, and the boy was frightened. The event became stored in his emotional memory bank. As a teenager or an adult, the sight of a dog – even a gentle one – still triggers a feeling of fear or hesitation even if he didn't remember being bitten when he was young.

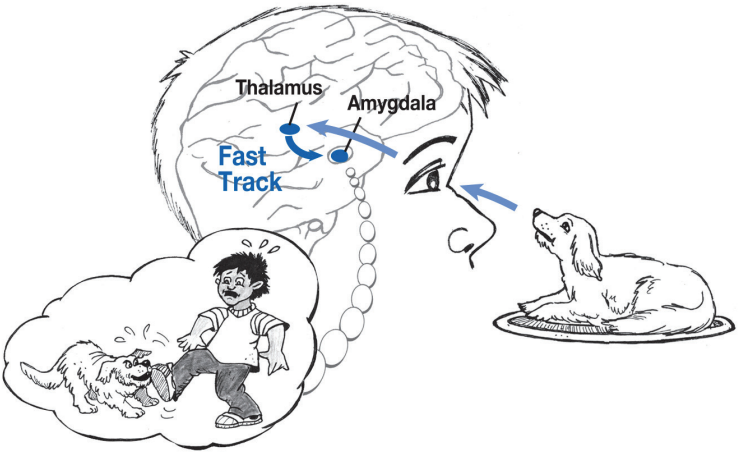


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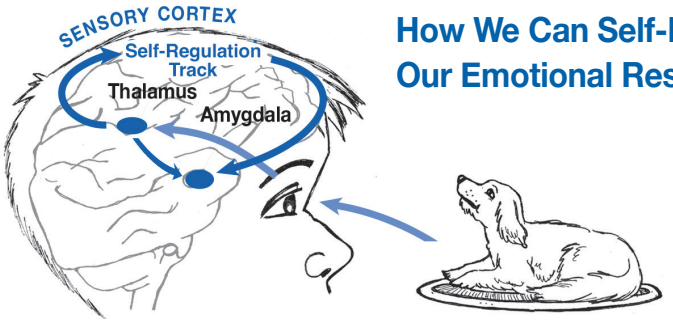
Here's what goes on in the brain to make this happen...

When he sees a dog when he's older, his brain instantaneously compares the image of the dog with his past memories through the *fast-track circuit.* The brain finds a match – with the memory of "dog" and getting bitten – and triggers a feeling of fear. This *feeling* then affects how his 3rd brain perceives the dog. He reacts with a fear of dogs without knowing why.

How Emotions Affect Perception: The Fast Track



The *information* about the dog goes to the 3rd brain through another pathway – which is part of the *Self-Regulation track*. If the 3rd and 2nd brains are working well together, the 3rd brain can then tell the 2nd brain that everything is OK. It's a friendly dog, and there is no reason to feel threatened.

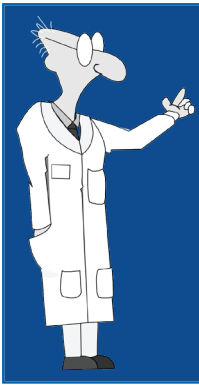


How We Can Self-Manage Our Emotional Responses

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Of course, such memories do not happen just with dogs. They happen with all of our past situations, including our relationships with other people, places and situations that have left deep impressions on us. A person with a certain kind of walk or body type might cause you to feel fear because he reminds you of someone who once bullied you. The smell of a hot dog can make you nauseous because you once came down with a stomach flu after eating one. You may dislike people with red hair because of that one red-headed person who once picked on you. And the list goes on.

Our emotional memories can cause us to stereotype whole groups of people with certain physical characteristics, affecting how we perceive and what we think about them. Our perceptions can be reinforced by others who see things the way we do, and they form mindsets, even if they are not really accurate.



DID YOU KNOW?

The only sensory input that goes directly to the amygdala is that of smell. Input from the other senses goes to another brain center—the thalamus—to be distributed. That's why smells can have such a powerful influence in triggering our feelings and emotions.

▶ Remember a time when a past memory was formed and how it affects you now in the present.

You can gain tremendous benefits once you recognize that your emotional memories are affecting you and, in many cases, controlling and limiting you. When you realize this, you can begin to reduce these inappropriate fears, anxieties, angry reactions, and other unhealthy emotions caused by emotional memories. You can also free yourself from fixed mindsets. However, there's good news!

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We also have a pathway from the 3rd brain down to the 2nd and 1st brains that allows us to manage our triggers and choose a different response. Developing the self-regulation track is the key to maturing and having good relationships, making and keeping friends, performing well and even having success in life. Often, many people have to learn how to use this circuit the hard way – trigger after trigger and a pile of stress build up. And some people never really learn how to effectively use it. It can be really helpful to use techniques that help us access, use and take advantage of the self-control track.

One effective tool is the Freeze Frame® Technique taught in this booklet. This tool can help you deal with emotional memories from a more objective perspective and with increased balance between the 1st, 2nd, and 3rd brains. As you will learn later in this booklet, the heart is involved in how we feel and how well the different brain levels can talk to each other. The heart and brain communicate with one another, and the messages they send back and forth affect us in many important ways. But before we explain this further, let's talk a little about the nervous system – the pathway through which these messages travel.

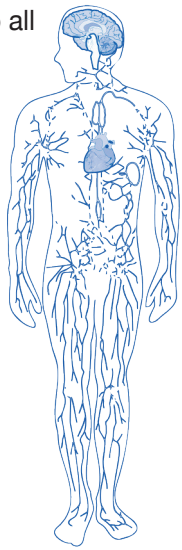
- **Think of a recent important event or memorable shared experience that you and two friends or acquaintances might remember well. The event has to stand out enough that all of you remember some details. It might be seeing a new movie, attending a fun party or an exciting sporting event, a unique incident when someone did something strange, a powerful discussion, or even something like an earthquake. Ask them to share some details they remember.**

- **Then ask them to tell you what they ate for lunch three days ago.** *(They may find it easier to remember details of the first event more than what they ate for lunch. Why? Because their emotional reaction to the first event was significantly stronger than their experience at lunch).*

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4 Emotions and the Nervous System

You can think of the nerves in your body as wires that carry electrical signals from one part of the body to another. For instance, nerves carry information from the eyes, ears, nose, and other parts of the body to the brain, so that we can perceive the world. This group of nerves is called the *sensory* portion of the ***central nervous system***. The central nervous system also carries the signals from the brain to the body so that we can walk, talk, and do all the things we do. This group of nerves is called the *motor system*. It is the motor system that we have conscious control over.



It is the autonomic nervous system that connects the brain, heart, and body.

Another major part of the nervous system is called the ***autonomic nervous system***. It operates at a *subconscious* level (without our being aware of it) and controls many of the functions of the internal organs and glands, that secrete *hormones*. The autonomic nervous system is also very much involved in our ability to feel and experience emotions.

Exciting new research has recently challenged several longstanding assumptions about emotions. For years psychologists maintained that emotions were purely mental expressions, generated by the brain alone. We now know that this is not true. Emotions have as much to do with the heart and the rest of the body as they do with the brain. Emotions are produced by the brain and body acting together. Today the idea of separating the brain from the body is rapidly becoming out dated. It is the autonomic nervous system that connects the brain, heart, and body.

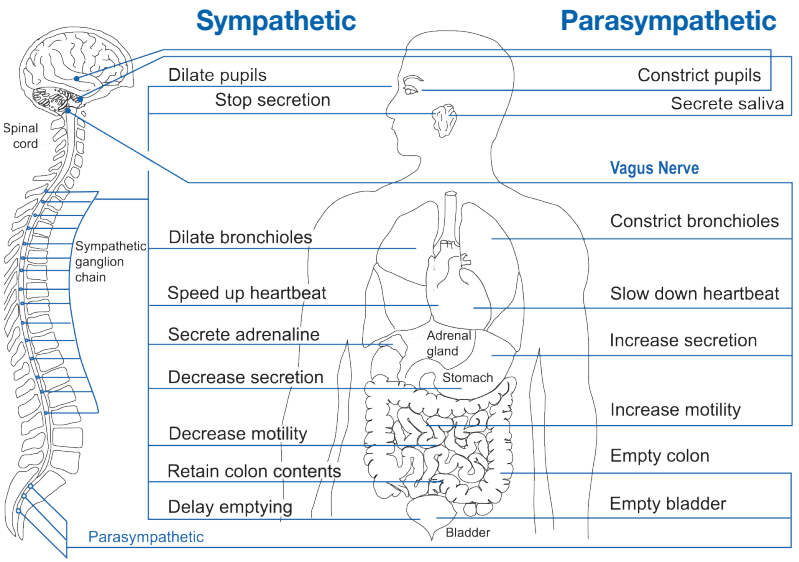
The picture on the next page shows how the autonomic nervous system affects different organs or bodily functions, utilizing two branches of nervous system activity.

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One branch is called the ***sympathetic nervous system***, which prepares the body for action by speeding up the heart rate – it can be compared to the gas pedal in a car.

The other branch, the ***parasympathetic nervous system***, can be compared to the brake pedal in a car because it slows the heart rate. The main nerves of the parasympathetic are called the Vagas Nerves.

For example... when we run or exercise, the sympathetic nervous system speeds up the heart rate. When we rest, the parasympathetic nervous system helps slow the heart rate down.



This diagram shows how the autonomic nervous system regulates different organs and bodily functions. Many health problems can arise due to a dysregulated autonomic nervous system. For example, emotions such as anger cause activity in the sympathetic system to increase and activity in the parasympathetic system to decrease. If a person is angry or stressed a lot of the time, an imbalance develops in his system, which can lead to impaired thinking, poor performance, looping negative thoughts, lost friendships and even high blood pressure.

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Different emotions cause different messages to be sent through the nervous system to the heart, face, and body. In the research laboratory, one of the easiest ways to see how different feelings and emotions affect the nervous system is to look at how the heart speeds up and slows down. The changes in the heart's rhythms reflect the activity in the two branches of the autonomic nervous system.

Emotions like frustration, anger, anxiety, or worry can cause the signals going down the two parts of the autonomic nervous system to get out of sync with each other. This is like having one foot on the car's gas pedal (the sympathetic nervous system) and the other on the brake (the parasympathetic nervous system) at the same time – this creates a jerky ride and burns more gas. Just as it would cause extra wear and tear on the car, the same process also causes extra stress in our bodies. It depletes our energy and interferes with our ability to think. Many people call emotions that lead to this inner disorder "unhealthy" or "negative" emotions because of the harmful effects they have on our bodies and health, especially when experienced often. Everyone has negative emotions occasionally, and we can learn from them, but over time having too many of these emotions is not healthy. For our happiness and well-being, it's important that we become aware of our feelings and take charge of our emotional experiences.

Research shows the following consequences of unhealthy emotions:

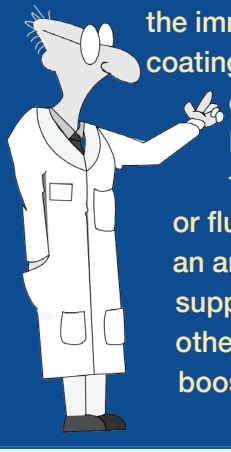
- Less ability to think clearly
- Less efficiency in decision-making
- Less ability to communicate clearly
- Reduced physical coordination
- Higher risk of heart disease
- Higher risk of high blood pressure



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DID YOU KNOW?

Anger suppresses your immune system. In a recent study, researchers asked healthy individuals to focus on two different emotions—anger and care—while a key immune system antibody, secretory IgA, was measured. IgA (immunoglobulin A) is the first line of defense in the immune system, acting as a protective coating for the cells against invading bacteria or viruses. Stress is known to decrease IgA levels, leaving us more vulnerable to respiratory problems such as colds or flu. The study found that simply recalling an angry experience caused a six-hour suppression of the immune system. On the other hand, feelings of care or compassion boosted IgA levels.



Can you remember a recent time when your emotions were making it hard to think clearly – or made you feel physically sick? Write about how you felt and what happened.

When we feel uplifting emotions, such as appreciation, care, and compassion, the signals sent through the nervous system are very different from the signals sent when we are feeling upset. These emotions allow the two branches of the nervous system to get in sync with each other. Then the body's glands and organs work together in harmony and the heart's rhythms become smooth and even. Thinking clearly and making better decisions becomes easier. This is why emotions such as appreciation, care, and compassion are called "healthy" or "positive" emotions.

Do positive emotions just happen to us – are they random – or can we choose to create them? At times, when we are with friends or doing something fun, we just feel good.

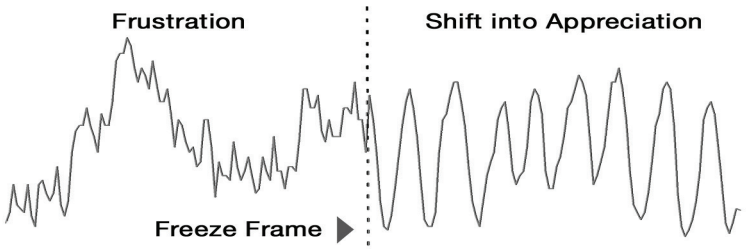
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At other times, finding a positive emotion could feel as likely as discovering water in the desert. But with practice, you can learn to create positive feelings yourself. Then you don't have to be a victim of emotional memories, circumstances beyond your control, or "a bad hair day." These skills are valuable. Researchers now say that learning to manage your emotions can make a big difference in whether or not you are successful in life. In fact, it can have a more important influence on your success than your I.Q.!

Research shows the following consequences of healthy or positive emotions:

- Improved performance and achievement
- More creativity and innovative problem-solving
- Better decision-making
- More flexibility in the way you think
- Improved memory
- Improved immunity to disease
- Improved hormonal balance
- Longer life span

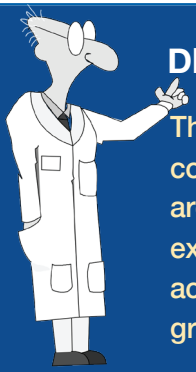
After you learn the Freeze Frame Technique, you will be able to shift your emotions and your heart rhythms, as shown in the diagram below.



- **Make some notes about a time you felt uplifting emotions.**

  Did you notice that you felt calmer or more confident about your thinking and decision-making?

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DID YOU KNOW?

The human face is a remarkable system consisting of 44 separate muscles; four are devoted to chewing and 40 to facial expression. One group of muscles is usually activated by positive feelings and another group by negative feelings.

Your facial muscles respond naturally without your conscious choice. It's an important way that people sense what you're feeling. You can try to cover up your feelings, but it's hard to do. As you know, it's easy to recognize an insincere smile.

Really good actors learn to generate the true feelings involved in the roles they play. Then their feelings are naturally reflected in their facial expressions and their acting has the power to move us.

5 The Heart-Brain Connection

The vagus nerves carry signals from the heart to the brain, as well as from the brain to the heart. Surprisingly, the heart sends more signals to the brain than the brain sends to the heart!

In a way, we could say that the heart and brain "talk" to one another – and together they "talk" with the body. The signals they send, whether harmonious or chaotic, can make all the difference in how we feel and act.

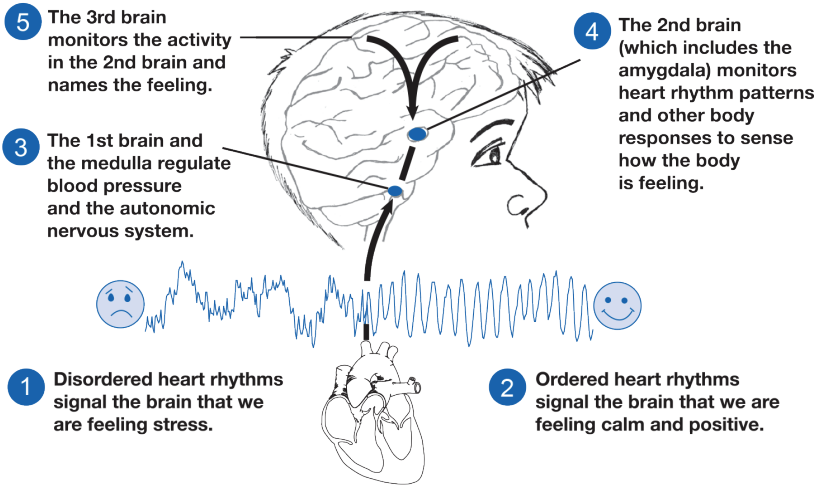
Nerve impulses from the heart are received first at the 1st brain level, then move into the brain's higher centers (2nd and 3rd levels), affecting how we feel, think, perceive, and perform.

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Jagged and irregular (incoherent) heart rhythms send a message to the brain that indicates we are upset. On the other hand, smooth, harmonious (coherent) heart rhythms send a signal to the brain that tells it everything is OK and working in harmony.

How Heart Activity Affects How We Feel

(Read in order of the numbers)



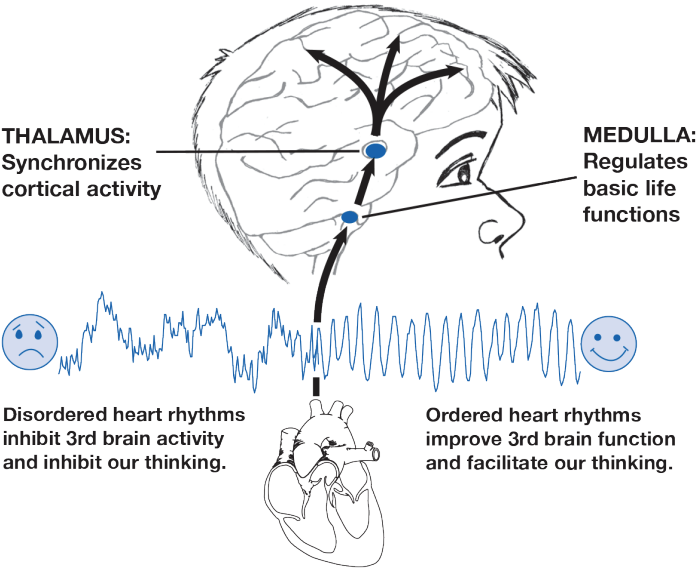
These messages are sent through the nervous system pathway, as shown above. The pathway starts in the heart and goes to the 1st brain, then to the amygdala in the 2nd brain. The pattern of the signal tells the 2nd brain what the heart and body are experiencing, while the 3rd brain monitors the 2nd brain and categorizes and names the feeling of fear, anger, joy, appreciation, or whatever it is – after we're already experiencing it.

When we breathe slower and deeper as we pretend to breathe through the area of the heart and generate a *positive feeling* – appreciation, for instance – we can actually change the signals the heart sends to the brain, influencing the brain's perception and improving how we feel.

This signal affects how the brain perceives and is an important way that the heart influences how we feel.

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How Heart Activity Affects Our ability to Think



Another important pathway, shown above, is mainly related to the activity of the 3rd brain and our ability to think clearly. It carries information from the heart to the *thalamus,* a key brain center that has many crucial roles. One of its roles is to distribute incoming sensory information to the different sections of the 3rd brain and ensure that the signals are in sync. Another function that the thalamus performs is to help synchronize the activity in the 3rd brain itself.

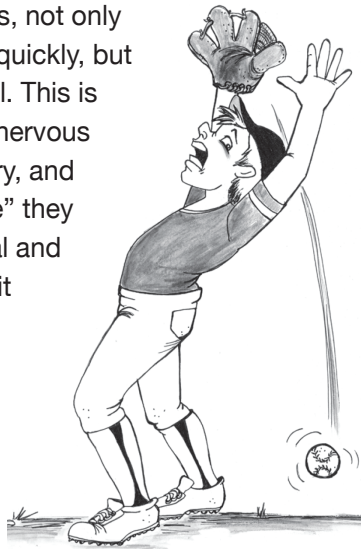
When the heart's signals to the thalamus have a jagged and irregular pattern, they interfere with the ability of the thalamus to perform this function. This results in what is called *cortical inhibition*. In this state the brain is not working as well as it could – your reactions are slowed, and you cannot think as clearly. This is why when you get angry or upset, you can say or do something that you wouldn't normally say or do. You hear someone say, "What were you thinking?!" What happened was that stressful feelings caused the signals in your nervous system to get out of sync, creating disordered heart rhythms and reducing your brain's and body's ability to perform well.

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However, positive feelings and smooth, even heart rhythms facilitate or improve the brain's ability to process information; this is called *cortical facilitation.* This means that our physical reflexes are faster and we can think more clearly. We can see more options and solutions to problems and situations than we could before.

This is important not only for tasks that require us to be able to focus, think, and make decisions, but also for ones that require us to have good coordination and speed – in sports, for example.

If we get upset while playing sports, not only do we drain our energy reserves more quickly, but our ability to perform is affected as well. This is because of the disorder caused in the nervous system by feelings like frustration, worry, and anxiety, and also because of the "noise" they create in the brain. An excess of mental and emotional noise in the brain can make it difficult to perceive what's going on. It overloads the circuits the brain needs for focusing, learning, remembering important details, and maintaining mental stability. The whole brain system goes into overload.



This is what happens when people are anxious about taking a test. Anxiety drives up the mental noise to such a pitch that they cannot focus or think clearly, since the brain circuits usually available for recognition and understanding are busy with the internal noise.

They will look at a test question and overlook certain words, miss the meaning of the question, and give the wrong answer. They can even miss seeing entire questions on the page!

This same process can happen when we are talking with our friends or family members. If we are not able to maintain a neutral feeling, we can literally be unable to hear what is being said and miss the meaning of what is communicated, which can further upset us.

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6 Heart Intelligence and Intuition

Many people talk about “trusting their gut” or “listening to their heart.” Throughout history, this inner guidance has been recognized as an important source of wisdom. Steve Jobs, the late entrepreneur and innovator who co-founded Apple, said, “have the courage to follow your heart and intuition”, reminding us not to let outside voices drown out our own inner knowing. He said that the heart and intuition somehow already know what we truly want to become.

Today, scientific research is helping us better understand what intuition really is and how it works in the body. Researchers generally describe three primary types of intuition. Each of these plays a role in how we sense, decide, and respond to life.

Implicit Knowledge: Learning We Didn’t Know We Learned

The first type of intuition is called ***implicit knowledge or implicit learning.*** Most of the early research on intuition focused on this type. It refers to knowledge we gained through past experience, even though we may not consciously remember learning it.

Have you ever struggled with a problem that you couldn’t solve right away? You think about it for a while, get nowhere, and then let it go. Later – perhaps in the shower, while driving, or doing something unrelated – the solution suddenly pops into your mind. This “aha” moment is a classic example of implicit intuition. While you weren’t consciously thinking about the problem, your brain continued working on it in the background.

Implicit knowledge also develops through experience. Someone with a lot of experience in a particular field may notice subtle warning signs that others miss. They may simply have a feeling that something isn’t quite right. Another person, without that experience, wouldn’t sense it at all. This kind of intuition comes from patterns learned over time and stored beneath conscious awareness.

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Energetic Sensitivity: Sensing the Environment

The second type of intuition is called ***energetic sensitivity.*** This is our ability to sense changes or information in the environment. One example is the nervous system's capacity to detect magnetic or energetic signals.

Some people can sense an earthquake before it happens. What they are responding to are changes in the earth's magnetic field, which can occur days or even weeks beforehand, and become especially strong shortly before a major quake. Most animals have this type of intuitive sensitivity and rely on it for survival.

Another familiar example of energetic sensitivity is the feeling that someone is staring at you. Research studies have shown that this experience is real. We often register subtle energetic or physiological cues before our thinking mind catches up.

Nonlocal Intuition: Knowing Beyond Time and Distance

The third type of intuition is known as ***nonlocal intuition.*** This refers to knowing or sensing something that cannot be explained by past learning or by environmental signals.

Examples include a parent who suddenly senses that their child, far away, is in trouble, or a person who starts thinking about someone they haven't spoken with in years – only to receive a phone call from that person moments later.

Many people have also experienced a deeper inner prompting that tells them not to do something, even when it seems logical or appealing. Later, they may realize they were fortunate to have listened to that inner signal. Some people call this their conscience or inner voice.

Research suggests this may be an expression of nonlocal intuition – what we call ***heart intelligence***.

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DID YOU KNOW?

Heart intelligence is a quick, intuitive sense that doesn't come from logical thinking. It shows up as a feeling or knowing before we can analyze it and explain it with words.

Heart Intelligence and Coherence

Research shows that when we are in a heart-coherent state – even for just a couple of minutes – the heart sends a stronger and clearer signal to the brain. This signal acts like an early warning or "pre-alert," helping us sense what is important before the thinking mind fully engages. This is one reason it is so important to prepare the heart before making important decisions.

The first step in strengthening our intuitive abilities is learning how to shift into a heart-coherent state. When mental chatter and emotional unrest quiet down, we gain better access to all three types of intuition. In other words, intuition becomes more available and more reliable when the heart and nervous system are in balance.

Listening to the Head and the Heart

As you practice paying attention, you may notice that the head and the heart often sound very different.

For example, imagine driving in rush-hour traffic.

- **Head:** "This traffic is ridiculous. That driver is incompetent. I'm going to be late. This is such a waste of time."
- **Heart:** "Traffic will move when it moves. Getting upset only drains energy. I'll put on some music and stay calm."Or consider a situation at work.

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- **Head:** "It's not fair. She always gets the best assignments. This makes me furious."
- **Heart:** "She's under pressure too. I don't want to get pulled into drama. Maybe I can shift my attitude or reach out."

The mind and heart can be thought of as two different radio stations. When you tune in to the heart station, your attitude shifts, and you naturally look for responses that serve the whole situation. Interestingly, the mind benefits as well – it becomes clearer, more rational, and more flexible. Heart intelligence gives the mind a broader perspective, helping it consider what is best for you while also being inclusive of others.

Heart-Based Feelings and Insight

Research has also shown that intuitive insight occurs more frequently when people are aligned with the core values of their heart. Feelings such as appreciation, compassion, kindness, and care help bring the nervous system into coherence. In this state, insight can arrive quickly – sometimes as a sudden, clear understanding that feels complete. Many people discover that practicing self-compassion and compassion for others helps them distinguish true intuitive guidance from emotional reactions or mental preferences. Over time, heart-based practices make it easier to recognize the calm, steady quality of genuine heart intuition.

Practical Intuition in Daily Life

Learning how to generate a heart-coherent state to access heart intelligence can help prevent many stress-producing situations and support smoother transitions through daily challenges. Practicing heart-rhythm coherence for just a few minutes, several times a day, helps align thoughts, emotions, and actions with what is most effective and reasonable in each moment.

Heart-based intuition can help with:

- Making better choices that lead to higher outcomes

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- Discerning direction in sensitive situations
- Knowing when to speak and when to remain silent
- Choosing the most helpful attitude for a situation
- Recognizing when a change in attitude or direction is needed
- Supporting healthier lifestyle and diet choices

Your heart's intuitive guidance is the voice of who you really are. In the next section, you'll learn a simple, practical tool – the Freeze Frame® Technique – that helps you shift into heart coherence so you can access this intelligence more easily, especially when you need it most.

7 Freeze Frame: A Positive Emotion-Refocusing Technique

By using the Freeze Frame Technique, you can learn to take charge of your emotions – and refocus them – so that they work *for* you rather than against you. This tool was created by Doc Childre, a leading authority on reducing stress and increasing emotional balance. The Freeze Frame Technique has been the subject of years of scientific research and is used by CEOs of corporations, doctors, nurses, athletes, performing artists, firefighters, police officers, and people in the military. The steps of this tool are simple actions you can take to stop the chaos in your nervous system and quickly feel and perform better.

You could look at your life as a movie in which you play the starring role. What you do from one moment to the next determines how the story in the movie unfolds and how it ends. Freeze Frame allows you to pause the movie so you can step back and get a wider and more balanced view of any situation. Then you can ask yourself, "How could I handle this in a better way?"

With practice, you'll find you have more choices or options for what you might do next – even right in the middle of an argument or when feeling stressed about all the things you have to do.

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The Steps of the Freeze Frame® Technique

Adapted from the original Freeze Frame Technique.

Step 1. Become aware of a life issue, challenge or opportunity and any feelings or attitudes about it.

Step 2. While focusing your attention in the area of the heart, imagine breathing a feeling or attitude of inner stillness or appreciation slowly and casually through your heart or chest area.

This helps balance your mental and emotional energy.

Step 3. While maintaining inner stillness, calmness or appreciation, ask your heart for guidance, solutions or deeper understanding.

Step 4. Quietly observe any subtle changes in perceptions, attitudes or feelings.

Step 5. Commit to sustaining beneficial attitude shifts and acting on new insights.

If no insights come up, that's ok. Repeat the process later or the next day.

The term "freeze frame" is Hollywood lingo for pausing a film on a single frame to take a closer look. A movie is made up of hundreds of thousands of frames of film strung together. The projector runs the frames past a powerful light so quickly that we perceive them as an ongoing story.

If we want to see a still shot of one of the moments in the movie flashing by, we have to pause the projector – or freeze the frame. When we're watching a movie, we forget that we're watching individual frames go by. It's similar in real life. We get so caught up in the story that it's easy to forget that it's made up of individual moments.

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When you freeze one of those moments, you have an opportunity to change what you might do next.

Research shows that when you practice Steps 2 and 3 and pretend to feel the breath flowing through the heart area while generating a positive feeling, there is a calming and balancing effect on your entire nervous system. There is also an improvement in how your nervous system, heart, and brain work together.

By using the Freeze Frame Technique you can shift the pattern of signals the heart sends to the brain, reducing the inner noise and helping your three brains work together in harmony. This will stabilize your emotions and start to recharge your energy. Then you're less stressed, can think better, perform better, and have more fun.

If you practice managing minor irritations, anxieties, or angry reactions, you are creating a habit that can improve your day-to-day experience tremendously. But you're also building strength you can use if you have to deal with a big crisis, challenge or unexpected change. If life really throws you for a loop – for instance a disaster happens at your school or in your community or nation, or someone you know becomes gravely ill – it can be really hard to bring some balance back to your emotions.

That's natural when the rug seems to be pulled out from under everything you feel secure about. But once your emotional energy reserves are exhausted, your nervous system has to operate on raw nerve energy. That's when your nerves feel frayed. Next come the cycles of fatigue, despair, and depression.

By learning how to take charge of your emotions, you start the process of renewing your emotional buoyancy, which can help reenergize the nervous system. This can take time, but using a tool like Freeze Frame can help you restabilize more quickly. Any time one person manages his/her emotions, everyone involved in the situation benefits. It's best if you can Freeze Frame when you first notice you are feeling stress. But you can practice any time by recalling a stressful situation from the last day or week or reflecting on something coming up that is making you uneasy.

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Helpful Tips

When you get really comfortable with Freeze Frame, you'll enjoy the feeling of having more control in your life. That feeling of control is important. But what's important to realize is that while you can't always control what events happen in your life, you can control how you respond or react to them. Using the Freeze Frame Technique helps you stop that stressful response and find a different one.

Once you've used the Freeze Frame Technique a few times using the written steps, you'll gain a better sense of being able to use it on the go.

You may find that doing Step 2 of Freeze Frame is all you need to calm down in the moment to gain a sense of a better way to handle a situation. If you feel you didn't get a new insight or solution, try it again. Or a little later it may "pop in", so pay attention. And sometimes the solutions seem too simple to be effective because the mind likes to complicate things!

Simple is often the straight-line to solutions that will make a real difference.

Step 5 is very important – acting on the new insight. When we don't, we tend to stay in the same mind loops, reactive behaviors and the situation plays out like it always does. You may discover that a solution or inner guidance comes to you now as something you've known before, but didn't yet act upon it.

Most importantly … have fun using the technique!!
Once you get the hang of it, you'll
want to use it all the time!

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Try the exercise below. (Take five minutes to do all five steps.)

Freeze Frame® Technique Worksheet

Step 1:
Become aware of a life issue, challenge or opportunity and any feelings or attitudes about it.

Step 2:
While focusing your attention in the area of the heart, imagine breathing a feeling or attitude of inner stillness or appreciation slowly and casually through your heart or chest area.

Step 3:
While maintaining inner stillness, calmness or appreciation, ask your heart for guidance, solutions or deeper understanding.

Step 4:
Quietly observe any subtle changes in perceptions, attitudes or feelings.

Step 5:
Commit to sustaining beneficial attitude shifts and acting on new insights.

If no insights come up, that's OK. Repeat the process later or the next day.

Issue:

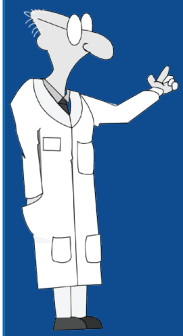
Thoughts and feelings about the issue Before:

What did you observe?

Thoughts and feelings about the issue:

This technique is adapted from the original version of Freeze Frame for this book.

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TRY THIS:
Put your hand on your heart. Did you place your hand on the left side of your chest? Many people do, but the heart is actually located almost in the center of the chest, between the lungs. It's tipped slightly so that a part of it sticks out and taps against the left side of the chest, which is what makes it seem as though it is located there.

✔ **Put a check mark next to the situations in which you would like to feel more in charge of your emotions.**

What's stressful to you might not be stressful to the next person, and vice versa. But there are many situations listed here where stress is common and where Freeze Frame can make an important difference.

When you are . . .

- ❑ taking a test
- ❑ playing sports
- ❑ playing music
- ❑ giving a speech or presentation
- ❑ listening to someone who is trying to tell you something
- ❑ other _____

When you are feeling . . .

- ❑ social pressure
- ❑ embarrassment
- ❑ picked on or bullied
- ❑ frustrated or angry with someone
- ❑ afraid to speak your truth to someone
- ❑ tempted to take drugs or drink alcohol
- ❑ upset because you can't sleep
- ❑ anxious about having a lot to do
- ❑ other _____

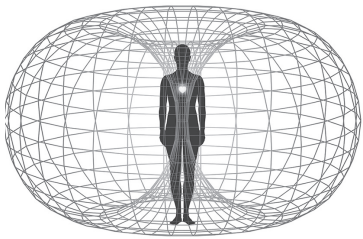
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8 The Heart's Energetic Field

Have you ever walked into a room and quickly felt the tension – or a feeling of calm and welcome – without anyone saying a word? Most people have experienced this.

Science now helps explain how this happens.

Each time your heart beats, it creates electricity. When electricity moves, it also creates a magnetic field. Because magnetic fields are hard to block, this field spreads out around your body in all directions. Scientists measure the heart's magnetic field using special tools called magnetometers. The field is actually shaped like a donut, called a *torus* shape.



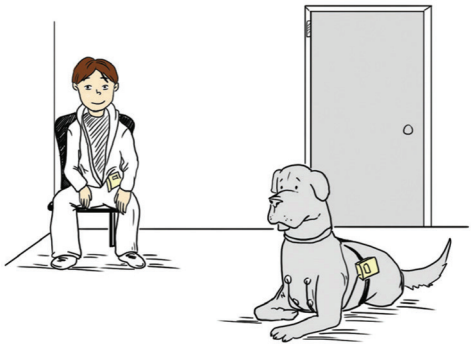
It is the same kind of electromagnetic field used by radios, cell phones, and televisions to send information. Whereas the magnetic field that your cell phone uses to carry your voice or text messages, the heart's magnetic field carries emotional information. Simply put, how you feel spreads outward from you. These signals can measurably affect other people and animals. What this means is that emotions don't stop at the skin – we're broadcasting them out into the space around us!

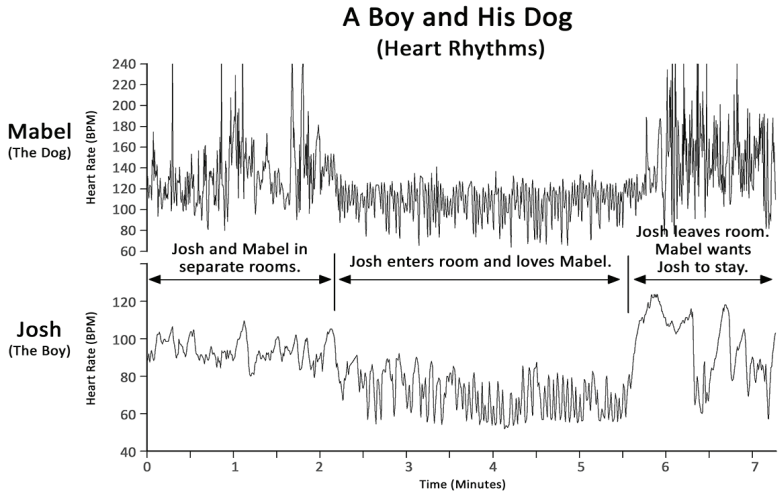
You can think of your heart's magnetic field as your own personal energy space. A helpful question to ask yourself during the day is: **"What am I sending out right now?"**

When someone's heart rhythms are coherent – the heart's magnetic field also carries a clearer and more organized signal. Research shows that this kind of signal can help calm and support the nervous systems of other people and even animals nearby.

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In a simple experiment, a 12-year-old boy named **Josh and his dog, Mabel**, were connected to heart-rhythm monitors. When Josh became calm and focused on feelings of love and care, Mabel's heart rhythms also became more coherent – even though Josh was not touching or talking to her. He was communicating energetically to Mabel in a measurable way.





Scientists were also curious about something important. They wondered: **If a small group of people are more coherent, can that affect another person to become more coherent?**

To find out, they designed a simple experiment: **Four people at a time were invited to sit together around a table. Each person wore a heart-rhythm monitor.**

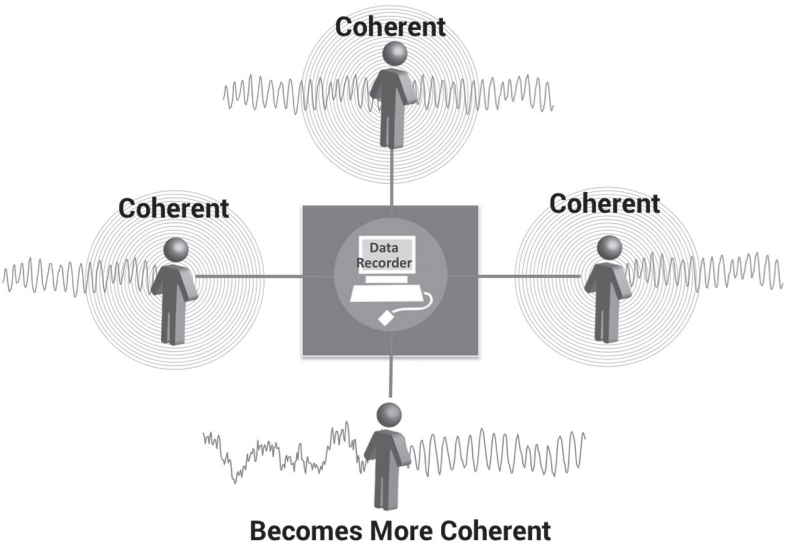
A couple of weeks before the experiment, three of the four people learned a technique to help them get coherent. The fourth person didn't learn this skill and wasn't told what the others would be doing.

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On the day of the study, the three trained participants practiced the technique they had learned to get their hearts coherent. They didn't say anything or touch the fourth person.

Something interesting happened.

When the three people became calm and coherent, the fourth person's heart rhythms often became more coherent too – even though that person had no idea what was going on!



It was as if calmness was spreading through the space, like a gentle ripple in water. This showed that when people are in a heart-coherent state, it can help others feel more settled and composed. We don't always have to *do* something to help – we can simply be calm and centered.This teaches us an important lesson: one of the best ways to support others is to take care of our own inner state.

When we stay heart coherent, we help create a calm and supportive environment. This makes it easier for someone who is feeling upset, stressed, or overwhelmed to find their balance again. Even a few people sharing positive emotions can lift the mood of a whole room, helping everyone feel more connected, aligned, and at ease.

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9 How to Increase Your Heart Coherence

Going to the gym and doing weight training builds and strengthens your muscles. Coherence training is like working out only you're building your "coherence muscle." Coherence training uses the HeartMath biofeedback technology, where you see your heart rhythms change as you get more coherent. It's fun and it's interactive!

Over time, building your coherence muscle means your heart rhythms are naturally more coherent. This creates a new, more optimal "normal" where you're calmer and aren't as easily triggered. Friends might even say – hey, there's something different about you. It's much better for your performance, health and wellbeing so you can enjoy life more – and you might just do better on tests too! Unlike apps that only track how much HRV you have, the HeartMath technology offers interactive *coherence training* that strengthens your capacity to maintain your cool under pressure. It also tracks your progress.

Coherence technology options include the Inner Balance™ app, the HeartMath app and the Global Coherence™ app. The Inner Balance Coherence Plus sensor works with all the apps and the purchase unlocks a lifetime subscription to the HeartMath app. The free Global Coherence app also supports both group coherence and personal practice and you can use your phone's camera as the HRV sensor.

Benefits of Coherence Training

- calmer responses, less moody
- clearer thinking, wiser decision-making, better focus under stress
- bounce back faster
- better sleep, nervous system balance
- increased endurance, faster reaction times, better coordination
- better test scores

What You Can Expect

- **Short-term (minutes)** → Immediate calming, ability to reset, more clarity
- **Medium-term: days – weeks** → Better sleep, faster recovery, improved focus

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- **6+ Weeks** → Higher coherence, resilience, long-term wellbeing, improved performance and physical health markers

Practice Plan example (starter)

- 5 minutes/day (morning or night) OR 3 × 3–5 min (morning, midday, bedtime)
- Aim: spend ~80% of practice time in the green coherence zone over time.

Many people find it fun and rewarding to use the HeartMath coherence technology.

10 The Real Story

Now you have the inside story on the three-part brain, emotional memories, your nervous system, energetic communication and heart-brain communication.

You have seen how your emotions can help you and how they can hurt you. You've also learned that it's possible to change the way you feel by generating uplifting feelings that allow your nervous system, heart, and brain to work together harmoniously. And you've learned a tool that's designed to help you do that.

What you do with all this information is the *real* inside story.
It's Your Story.

Glossary

adrenaline: A hormone secreted by the adrenal glands that stimulates the heart, and increases blood sugar, muscular strength, and endurance. Also called epinephrine.

amygdala: A key brain center that coordinates behavioral, neural, immunological, and hormonal responses to environmental threats.

appreciation: An active emotional state in which a person has clear perception or recognition of the quality or magnitude of that which he or she is thankful for.

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autonomic nervous system: The portion of the nervous system that regulates most of the body's involuntary functions.

bronchioles: Small air passageways of the lungs.

central nervous system: The main information-processing organs of the nervous system, consisting of the brain and spinal cord.

compassion: Deep care with understanding.

cortex: The outer layers of the brain, used in thinking, problem-solving, goal-setting, planning.

cortical facilitation: Enhanced or improved functioning of the cortex of the brain.

cortical inhibition: Reduced functioning of the cortex of the brain.

ganglion: A specific group of nerve cells.

hormones: Chemical messengers that affect local or distant parts of the body, or the body as a whole.

immune system: The system that protects the body from disease by producing antibodies.

medulla: The lowest part of the brain, continuous with the spinal cord, containing nerve centers that control breathing, circulation, and other involuntary functions.

motility: Movement or contraction of an organ or system, for example the gastrointestinal tract.

motor system: Nerves carrying impulses to the muscles.

nervous system: The system of cells, tissues, and organs that coordinates and regulates the body's responses to internal and external stimuli. In vertebrates, the nervous system is made up of the brain and spinal cord, nerves, ganglia, and nerve centers in receptor and effector organs.

parasympathetic nervous system: The branch of the autonomic nervous system that generally slows or relaxes bodily functions.

secrete: To form and release a substance, as a gland forms and releases hormones.

sensory: Connected with receiving input from our senses of smell, taste, sight, hearing, and touch.

stress: Pressure, strain, or a sense of inner turmoil resulting from our perceptions and reactions to events or conditions.

suppression: The stopping or lessening of the activity or function of a bodily organ or system.

sympathetic nervous system: The branch of the autonomic nervous system that generally speeds up bodily functions, preparing us for mobilization and action.

synchronize: To move or occur at the same time or rate. (sync: In synchronization with, or in harmony with.)

thalamus: The part of the brain to which run all the nerves that give rise to conscious sensation.

vagus nerves: Nerves that carry signals between the brain and the heart, lungs, esophagus, and most of the abdominal organs.

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New Edition

The Inside Story



The Heart-Brain Connection and How We Perceive the World

The Inside Story is filled with vital information for the healthy behavior and well-being of adolescents and adults. Based on the latest research in neuroscience, this forty-two page booklet explains, in simple terms, the connection between emotions and heart-brain physiology. Readers will understand the interplay between their bodies, mind, emotions, and performance. Included are several reflective activities and an easy-to-use technique for transforming daily stress.

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