2

The Science Behind EFT

When you first watch an EFT session, or use EFT yourself, you might be surprised at how fast things change. Sometimes the changes are so profound and quick they seem to be miraculous. It's taken many years for science to be able to explain these rapid changes, but fortunately, there's now a solid framework of evidence showing what's happening in the body and mind during the process. This chapter summarizes that evidence, and shows the life-changing potential emerging from EFT research.

How EFT Is Able to Address Such a Wide Variety of Problems

A 23-year-old woman volunteered for an EFT demonstration on the first day of an EFT Level 1 class. She had an open, childlike face, but there was an air of great sadness about her. She told the group that she had suffered from rheumatoid arthritis since she was a child. She had been treated in various ways, including hydrocortisone injections into her knees starting at the age of 2. The symptoms had abated somewhat by the time she was 18, but then returned in full force 3 years later. When asked in the class for the current location of the pain, she reported pain in three locations: her right ankle, her left knee, and her left elbow. She was asked to rate the intensity of the pain using a scale

from 0 to 10, with 0 representing no pain, and 10 representing the greatest pain possible. The pain in her elbow was 3, her knee 8, and her ankle 5, and was always present, day and night.

I asked her what was happening in her emotional life around the age of 2, when the symptoms began. In a low, hesitant voice, she said that her mother and father often had fights. She began to cry uncontrollably. We began to do EFT for "the big fight" she had witnessed, for the raised voices of her parents, for the fear she felt when they fought, and for how unsafe she felt when growing up.

Her suffering was so evident that many people in the room began to cry. Yet after about 15 minutes of EFT tapping on various aspects of her parents fighting, she reported a reduction in pain to 1 in her elbow, 5 in her knee, and 3 in her ankle. On the second day of the class, she reported no pain in her elbow and her ankle, though there was still some pain in her knee. She said that she didn't feel it was safe to let go of all the pain yet, and she was encouraged to let it go at her own pace, and not force the process. That second day, her appearance had also changed noticeably. She smiled, and participated lightheartedly in the group, in contrast to the heavy sense of oppression she'd exhibited the day before.

Drug treatments for rheumatoid arthritis are described in the medical literature, but emotional treatments are not. The website of the legendary Mayo Clinic, one of the most influential hospital systems in the United States, begins its web page on the condition with the definitive statement: "Rheumatoid arthritis has no cure." (Mayo Clinic, 2013). How can EFT have an effect so quickly on a problem that has not been solved by all the technology available to modern medicine? How can it resolve a physical symptom, like the woman's arthritis, when the EFT session did not even target physical pain? In the case just described, EFT worked on only the emotional issue, yet when that reduced in intensity, the physical problem went away too.

The answer to this question that is so central to EFT can be found in the insights that science has gained in the past two decades into the way our brains and bodies work.

When you have a traumatic experience as a child, for example, a bully at school knocks you down and you hit your head on a hard surface, you form an unpleasant association in your mind between the event and the pain. Part of our brain has the job of keeping us safe and is constantly scanning the horizon for threats to our well-being. It compares cues from the environment we are in right now with the banks of previous unpleasant experiences stored in memory. When it finds a match, it alerts us to a potential problem. If the bully had light blue eyes and blond hair, you might feel uneasy in the presence of people with similar coloring, without knowing why, as the brain goes on high alert when the possibility of a threat comes within the range of your perception.

The Brain's Ability to Detect Threats

The part of the brain that deals with threats is called the *limbic system* or midbrain, because it is located between the frontal lobes, which are responsible for conscious thought, and the hindbrain, which handles routine tasks like food digestion and blood circulation. The limbic system encodes negative experiences with an emotional charge. In effect, it attaches an emotional tag to a class of memories, the way a shopkeeper might attach a red label to all the items on sale. The red tag distinguishes important items from unimportant ones. It draws special attention to any item with that color tag. Our attention is heightened whenever we see a red tag. These emotional tags are attached to certain memories by the limbic system to warn us of potential danger. So if as a child you had your hand bitten by a dog, you feel a surge of emotional intensity when you see another dog later on, as the limbic system does its job, comparing the new sensory input of a different dog with the negative tag of the pain associated with the previous experience of a dog.

This machinery is very appropriate for physical threats, keeping us away from heights, from poisonous animals and plants, and from other dangerous situations. For the human species, this threat-assessment machinery has worked brilliantly for millennia. When our ancestors

saw a tiger in the jungle, they took appropriate action: fight or flight. The human fight-or-flight response kicks in very rapidly in response to a perceived threat, and gets the body ready for life-or-death action. Because survival is the most fundamental need of a species, there is nothing slow, restrained, or casual about the way our bodies respond. We have a set of genes called the immediate early genes or IEGs that click on the moment we perceive a threat (Rossi, 2002). These genes contain the genetic code for stress hormones such as cortisol and adrenaline (also known as epinephrine).

Our adrenal glands pump out large quantities of these hormones *less than 3 seconds* after we recognize a threat; that's how quickly the IEGs are turned on. Stimuli that affect genes are called "epigenetic" signals; they signal the body to turn the appropriate genes on or off. The hormonal part of the stress-response system is referred to in traditional biology textbooks as the HPA axis, short for hypothalamus-pituitary-adrenal axis. These three organs are central to the function of the endocrine system of ductless glands that produce hormones. The stress response is triggered by the hypothalamus, part of the limbic system that recognizes stimuli that have red "high-emotion" tags attached to them. The hypothalamus passes that message to the pituitary, using "messenger molecules," molecules that signal other parts of the body to perform specific functions. The pituitary, sometimes called the "master endocrine gland," then signals other glands such as the adrenal glands.

A surge of adrenaline rapidly flows through the body. Our hearts race, signaled by histamine molecules. The blood vessels in our digestive tract, reproductive system, and all nonessential systems constrict, forcing blood to flow out to our peripheral muscles, making them ready for action. Our immune system shuts down, and the process of cell regeneration (facilitated by cortisol's hormonal cousin, called DHEA or dehydroepiandrosterone) comes to a halt.

Our liver dumps glucose sugar into our bloodstream, so that our cells will have an abundant supply of energy. Our pupils dilate, and blood drains out of the frontal lobes of our brains, because we don't

need the ability to perform calculus when there's a tiger in the vicinity; we need to be able to see well and to run fast.

Our nervous system goes into overdrive, dominated by the part called the *sympathetic nervous system,* which handles emergencies. All our physiological resources are redeployed to meet the threat. It is this rapid response that allowed our ancestors to survive; those with slow fight-or-flight reflexes were the ones that were eaten, while those with fast reflexes lived to breed, and produce us. So we're the pinnacle of 570 million years spent perfecting this lightning-fast fight-or-flight response.

The problem is that modern adult human beings live in a world with very few threats to their physical survival. When was the last time you saw a tiger? This whole magnificent threat-assessment machinery sits at the core of our brains, always turned on, but with few actual objective physical threats to act on. So it occupies itself with imaginary ones: fears, worries, anxieties, resentments, projections, imaginings. When you think of an imaginary tiger, your body responds with a fight-or-flight response, much as though there were a real tiger in the room.

Brain Waves: Beta, Alpha, Theta, and Delta

The line between reality and imagination is even blurrier for children, especially those under the age of 6. The predominant brain waves at that age are slow rhythms, called delta and theta waves (Lipton, 2008). In adults, these brain waves are associated with the subconscious, with superlearning, with hypnosis, with trance, with energy healing, with profound creativity, and with sleep and dreaming (Fehmi & Robbins, 2010; Wise, 2002).

The brain waves associated with conscious deliberative thought processes, alpha and beta, don't start to predominate in the human brain till after the age of 6. Before then, we're in a mental state in which reality and imagination blend freely. We're in something like a hypnotic trance that facilitates superlearning. Think about children who have an imaginary friend, estimated to be about 65% of all children, for an example of

the way fact and fancy blend freely in a child's mind. Think about the stories children tell, in which they mix fantasy and actual events, with little apparent ability to distinguish the difference, or interest in doing so. Think about how easily they can invent games of "Let's pretend."

This superlearning trance was fantastically useful to primal human children. In the first few years of life, they absorbed astonishingly large amount of information. This information included languages, social cues, survival behaviors, and tribal rituals. All these helped them to survive. They went from helpless infants, unable to even walk, to seasoned evolutionary competitors in just a few years. By the age of 5, a Paleolothic child might learn more skills than had accrued in the entire evolutionary history of another intelligent species like dogs. The child would have learned to communicate complex concepts to others through language, to anticipate the weather, to plant seeds and harvest crops, to make fire, to store food against emergencies, to barter, and a thousand other behaviors that aid in survival. The superlearning trance of human children gave our species an evolutionary edge.

Yet there's a dark side to the picture. Traumatic life experiences at that age can be experienced by children as threats to their survival. If Mommy is a raging angry person and Daddy is a crazy alcoholic, and they often scream at each other, the child frequently has the fight-or-flight machinery of the sympathetic nervous system activated. A child does not have the cognitive ability yet (those alpha and beta brain waves) to assess the threat consciously and say, "Well, Mommy might be yelling, but she probably is not actually going to kill me."

The child's cortisol rises, IEGs snap into action, and the sympathetic nervous system goes on high alert. A little boy may run and hide, a manifestation of flight, when a parent is raging. That memory is encoded in his limbic system. Now that same person is 40 years old, but when confronted by a similar situation, the limbic system automatically looks for a similar red tag. When a boss or spouse is yelling, it says, "Aha, this sounds like Mom, so I better hide." The man might fall silent, or withdraw emotionally.

How many men do you know who withdraw emotionally when a woman gets upset? The woman might then get more upset at the lack of emotional contact, which then prompts the man to withdraw further, in a dysfunctional relationship dance. In this way, neurological and hormonal responses that evolution gave us, that were perfectly adapted to life on the savannah 100,000 years ago, cause great grief and misery to us today. These traumas are stored in the brain and the body, sabotaging our happiness, and setting us up for misery in a world in which the tigers in our minds far outnumber the ones in the zoos.

Exposure, Cognitive Change, and Conditioned Responses

EFT works very simply and scientifically. It has us face and remember a negative emotional experience, a method referred to in psychology as "exposure." We then pair that remembered trauma with a new cognitive input, reframing the memory with a statement of self-acceptance: "I deeply and completely accept myself." While we hold these two items in mind, the traumatic exposure and the cognitive reframe, EFT then has us tap on our bodies. The tapping points used in EFT correspond to points used in acupuncture, and they release stress.

Tapping also soothes the body, introducing a non-traumatic physical stimulus, and interrupting the emotional triggering we've created through the traumatic memory. This pairing of a troublesome memory with a soothing physical stimulus often breaks the power of that memory, reducing its emotional intensity. In the language of behavioral psychology, we had a *conditioned response* of upset (a red tag) encoded to correspond to that memory. By thinking of the memory often and getting upset, we've established a strongly *conditioned feedback loop.*

Tapping signals the body that we're safe, and so the conditioned loop is broken. Afterward, the nervous system no longer associates the memory with stress. The speed with which EFT can drain the emotional intensity of even long-held memories is quite startling to people who have not witnessed it before.

One example occurred in front of a large psychology conference at which I was giving a keynote address. A 45-year-old therapist

volunteered for an EFT session. She had pain in her neck and was unable to turn her head to the right. She said she had suffered from this condition since she was 9 years old, after being involved in a car accident. The car was being driven by her older sister, who was not yet of legal driving age. The woman described how she had worked on this problem for years, using all her psychotherapy skills, but with only limited success.

She did EFT as she described the minutes before the car crash, the crash itself, and the aftermath. After the crash, she and her sister were taken to the nearest house, where she sat, blood streaming down her face from a scalp wound, waiting for her aunt to collect her. She described the fear she felt waiting for her aunt, and the moment just before the crash, when she realized that their car was going to collide with an oncoming car. Even though she worked on all those aspects and several others, her pain did not subside, however, and her neck showed no improvement.

Suddenly, she gasped and said, "I've just remembered a detail I'd forgotten. I always knew my sister was driving illegally because she was underage. But I just recalled that, that day, *I dared her* to drive the car." She was flooded by a sense of guilt for her part in causing the accident, and she then used EFT on those feelings. When we checked in on her neck pain, it was down to a 0. And she turned her head all the way to the right, the first time she had been able to do so since the accident.

Notice how this therapist used exposure, remembering all the details of the accident, and how new cognitive awareness (her daring her sister) opened up, allowing her to find peace and self-acceptance. There are hundreds of stories in the EFT archive in which people report similar results (www.EFTUniverse.com).

Even when the feedback loop of pain or emotional trauma has been reinforced for years, EFT is often able to break it very quickly. When this happens, the neural bundles that have been transmitting the pain and muscle limitation messages appear to be deactivated, and the brain's threat-assessment machinery calms down. When people are hooked up to an EEG (electroencephalogram) machine, and then

asked to recall a traumatic memory, the brain waves associated with the fear response are activated. When they do the kind of acupoint tapping used in EFT, their brain state changes to one of calm.

When they are then asked to remember the traumatic incident months later, while again hooked up to an EEG machine, their brain waves still remain calm. Measuring the brain's electromagnetic energy field with an EEG gives us a fascinating picture of what's happening to the brain under stress. There are several studies which use EEG to measure these changes in brain waves (see Swingle, 2010; Lambrou, Pratt, & Chevalier, 2003; Swingle, Pulos & Swingle, 2004; Diepold & Goldstein, 2008).

Electromagnetic Energy and Acupoints

In the 18th and 19th centuries, inquiring scientists began to invent instruments capable of detecting these electromagnetic fields (Shealy & Church, 2013). In 1903, a Dutch physician named Willem Einthoven measured the field of the human heart, which has the strongest electromagnetic field of any organ; and in 1924, he received the Nobel Prize for his work. In 1929, Hans Berger measured the electromagnetic field of the brain, and progressive refinements in instrumentation mean that today the electrical and magnetic fields of even single cells can be measured. Using the body's energy fields for diagnosis and treatment has led to such medical advances as the MRI (magnetic resonance imaging), ECG (electrocardiogram), and MEG (magnetoencephalogram). Electromagnetic fields are also used to treat many conditions. PEMS (pulsed electromagnetic stimulation) machines have been used with great success for depression, as well as physical symptoms ranging from migraine headaches to Parkinson's tremors.

The use of energy fields in medicine has been accompanied by great controversy. In the period between Einthoven's discovery and his Nobel Prize, the influential Flexner Report was published in 1910 in the United States. This report became the basis of the medical system we have today. It rejected approaches other than allopathic medicine, such as homeopathy. It condemned electromagnetism in medicine as

"irregular science." Yet the evidence of the importance of energy fields in human biology continued to grow, from experiments conducted by Russian scientist Alexander Gurwitsch in the 1920s showing that light energy is emitted by living organisms, to studies by Robert Becker in the 1960s demonstrating that microcurrents can stimulate the healing of bone fractures, to the 1992 discovery of magnetic magnetite crystals in brain cells in the human limbic system (Oschman, 2003).

The observation that some kind of energy is involved in biological processes is not new. Chinese acupuncture diagrams dating from around 2,500 years ago show the energy flows that the doctors of that time used as a guide for inserting needles. Fast forward to today; several recent studies have shown that the stimulation of acupoints (acupuncture points) sends signals to the brain, espcially the limic system and other structures involved in the fear response (Hui et al., 2005; Fang et al., 2009; Napadow et al., 2007). Various scientific bodies, from the WHO (World Health Organization) to America's NIH (National Institutes of Health), have compiled a growing list of physical symptoms for which acupuncture has shown itself to be effective. Energy is central to healing, whether it is the electromagnetic energy flows mapped by the fMRI (functional MRI) and EEG machines prevalent in Western medicine today, or the acupoint meridians used for healing by the ancient physicians of Eastern medicine.

This body of knowledge is pertinent to EFT. The stimulation of acupoints has been shown in MRI studies to regulate the fear response in the brain. EFT studies performed over the last decade have shown that EFT relieves stress in its many manifestations, psychological and physical (reviewed by Feinstein, 2012). These studies have begun to identify conditions that EFT is best able to treat, and also the underlying physiological mechanisms at work in such rapid healing. As medical costs in Western countries soar, governments and organizations are increasingly insisting on "evidence-based" practices, treatments that can demonstrate convincingly that they work. EFT has established an impressive base of research results for a number of mental health problems such as PTSD, anxiety, phobias, and depression, as well as

showing promise for physical conditions such as pain, cravings, obesity, traumatic brain injury (TBI) and fibromyalgia.

Evidence-Based Practice

Before we describe the essentials of how to do EFT yourself, here's a quick tour of the scientific evidence showing that EFT works. The studies outlined here were published in peer-reviewed journals. When a psychology or medical journal is described as "peer-reviewed," it means that it uses a committee of reviewers, usually doctors, statisticians, and psychologists, to scrutinize every word and number in a study before publication, and point out any weaknesses or errors, to ensure that only high-quality research is published.

We're summarizing this research here in *The EFT Manual* so that you have a sense of how grounded EFT is in good science, and so that, as you go forward with your exploration of EFT, you can do so with the confidence that rigorous, evidence-based methods have been used to establish the validity of EFT. For a more complete picture, including the abstracts of each study, full copies of many of them, and updates as new research is published, you can visit www.Research.EFTUniverse.com.

The first study of EFT published in a peer-reviewed journal was done by a research team led by Steve Wells, an Australian psychotherapist (Wells, Polglase, Andrews, Carrington, & Baker, 2003). It was a randomized controlled trial (RCT) of people with phobias. RCTs are regarded as the Gold Standard of research, because they control for all of the factors that can skew the results of a study and provide misleading results. Wells and his colleagues identified people with high phobic responses to small creatures such as bats, spiders, and snakes. They tested the aversion of study participants with a behavioral approach test (BAT), which measured how close to the feared creature the subject was capable of walking. They also used other measures of phobic response. To control for the placebo effect, the second group received an intervention known to be effective on anxiety, called diaphragmatic breathing (DB). The researchers found that after half an hour of treat-

ment, the EFT group could walk much closer to the feared small creature than those in the DB group. When they retested some of the subjects 3 to 6 months later, most of the improvement had been maintained.

The Wells study was later replicated by psychology professor Dr. Harvey Baker of Queens University in New York, and his colleague Linda Siegel, who introduced additional rigor into the measurements by testing the degree of expectancy participants had that the treatment would help them (Baker & Siegel, 2010). Both groups in the Baker and Siegel study had the same degree of expectancy, so the results of the Wells study could not be explained by the placebo effect. The Wells study was also replicated by Maria Salas, Jack Rowe, PhD, and Audrey Brooks, PhD, of the University of Arizona at Tucson (Salas, Brooks, & Rowe, 2011). In this second replication, other phobias such as fear of heights were also tested, showing that the effects of EFT in reducing phobias aren't limited just to the fear of small living creatures.

While studies are important, replications are equally so. Until an independent research team has confirmed the findings of the first study, there is always a possibility of error. That's why the APA standards require two RCTs.

Several randomized controlled trials of EFT for PTSD have been conducted. One of these was conducted by a research team that I was privileged to lead (Church et al., 2013). The investigators included therapist Crystal Hawk; Audrey Brooks; Olli Toukolehto, MD, of Walter Reed Army Medical Center; Phyllis Stein, PhD, of the University of Washington Medical School; and Maria Wren of the Veterans Administration Newington Connecticut campus.

In this study, 59 war veterans were randomized into either an EFT group or a wait list. The wait list group received treatment as usual from their primary care provider (usually a VA hospital) while the other group received treatment as usual plus EFT. The EFT intervention took the form of six sessions delivered by life coaches or therapists who helped the veterans tap on their combat memories. While the

wait list group did not improve over time, the PTSD symptoms of the EFT group plunged drastically, by 64%.

This study was designed based on the findings of an earlier pilot study, which also used six sessions, and found that EFT was very effective at lowering PTSD symptoms in veterans (Church, Geronilla, & Dinter, 2009). A third study of EFT for PTSD followed a group of veterans and their family members who went through a 5-day EFT intensive (Church, 2010b). Their PTSD levels also declined precipitously; one said afterward, "I got my life back again." Their experience is the subject of a documentary film, *Operation Emotional Freedom.* An independent research team at a hospital in Britain's National Health Service (NHS) also evaluated EFT for PTSD (Karatzias et al., 2011). They compared EFT to EMDR (Eye Movement Desensitization and Reprocessing), another effective treatment for PTSD. They found that both therapies were effective in four sessions. Another research team compared EFT to cognitive behavior therapy (CBT) in a group of female trauma survivors in the Congo (Nemiro, 2013). They found EFT to be as effective as CBT.

There are many moving stories of veterans who've been helped by EFT in the book *EFT for PTSD* (Church, 2014d), as well as insights from those who've helped them heal. Here's a story about "Don," a 61-year-old Vietnam veteran who has been diagnosed with Parkinson's disease. He and his EFT practitioner, who tells the story, worked together for a total of six EFT session hours, as part of the National Institute for Integrative Healthcare study of veterans with PTSD.

Lifting the Weight of PTSD

By Marilyn McWilliams

Since returning from Vietnam, "Don" did not have one night of uninterrupted sleep. He usually went to bed between 9:30 p.m. and 10:30 p.m., and got up between 8:15 a.m. and 10:00 a.m., feeling fatigued. In this 10–12 hour time period that he spent in bed, he was woken up by horrific nightmares at least twice per night. He never

slept more than 1–2 hours at a stretch, and never more than 4–5 hours total—for 40 years…

Our first session took only 20 minutes, as this was all that Don could handle that day. Before we started with EFT, he said his thoughts were like bumper cars, bouncing all over, but the tapping helped him relax and release the tension in his mind. It also stopped the tremors and shaking that are symptoms of Parkinson's disease. We tapped on finding peace with the war and peace with Vietnam. After this brief session, his sleep already greatly improved: He now slept 6–7 hours, woke up twice briefly, and felt rested instead of fatigued.

In our second session we worked through the traumatic memory of having shot someone's arm off 2 weeks before he returned home from Vietnam. His sadness and guilt for the Vietnam soldier was overwhelming and had followed him for 40 years. The Vietnamese had raised his weapon in front of him, and Don wasn't sure if he wanted to give up or shoot at him, so he shot first. This happened 2 weeks before he was supposed to return home. We released the sadness and guilt using the gentle EFT techniques: Tearless Trauma, Sneaking Up on the Problem, and the Movie Technique, and tapped on deserving forgiveness.

In his e-mail the morning after the session, Don reported: "Sleep is improving, no nightmares last night. My overall energy has been on an upswing. My hands still shake, but not as much, I've been tapping on the shakes and it seems to help. I think what we've worked on is quite amazing."

The third session dealt with a very traumatic event. His best friend, who usually walked to the left of Don, this time took his right side while scanning the jungle. When he got shot, Don felt that his friend had caught the bullet for him and never forgave himself for this. It didn't matter that he received a bronze star for the dangerous rescue efforts that he made to save his friend's life, Don felt that this was undeserved as he couldn't save him, and after all these years still cried about the loss and

guilt. The images of turning his friend, whom he loved like a brother, over, and seeing his head exploded, haunted him daily.

After using EFT on this memory, he realized that if he had caught the bullet, and his friend survived, he would have forgotten and released him a long time ago. He would never expect or want him to feel the way he felt himself. This realization allowed him to finally find peace, love, and forgiveness.

In his e-mail he wrote: "Thank you for today's session, I feel much more at ease. I slept for 2 full hours after the session, a fairly sound sleep, I couldn't believe that it was for 2 hours, it seemed like only minutes. Thank you again for all your help."

Two days later, Don had an intense dream relating to the death of his father, who had killed himself while driving drunk when Don was 18. So we worked through his trauma, releasing pain and guilt he had carried for more than four decades.

Sleep: By now, he was going to bed between 9:45 and 10:15, sleeping 7–8 hours, waking up briefly once or twice in between, but no more nightmares. He just rolled over, and went back to sleep. He woke up fairly refreshed between 7:30 and 8:15 a.m. What an improvement for someone who had usually two serious nightmares each night and never got more than 4–5 hours!

In our fifth tapping session 3 days later, Don talked a lot about the improvements in his sleep and overall well-being. Then we tapped for the stress and feelings of lack of control resulting from the construction of his new home and people not doing what they were supposed to do. No more war memories came up for him! Reviewing his progress 2 weeks later, Don said, "I still think about Vietnam but it doesn't seem to bother me."

After 60 days, we did another session, and one more war memory came up: He had to identify comrades that had been killed and found in the jungle several days earlier. After tapping on all the aspects of what he saw and smelled and the disgust and nausea that he felt, he took a deep breath and stated: "Now the bad spirits are gone." He had felt as if these dead men had always been with him, somehow, weighing

him down and taking his breath away. Now he reported that he felt as if a huge weight had been lifted off him, and he could breathe and think clearly.

Don's voice has a very different sound now. It is clearer, lighter, and faster. There is less roughness and he laughs more. It is truly nice to hear the hope and confidence in his voice. His sleep has improved from getting 4–5 hours per night in a 10-hour time period, interrupted by an average of two nightmares, to getting an average of 7–8 hours with no nightmares, waking up refreshed.

Between the first session and his 30- and 60-day follow-ups, Don's scores for depression, anxiety, hostility, and other psychological issues dropped gradually from 122 to 77. His PTSD score dropped from 65 to 34 after session 5, and remained there through the 30- and 60-day follow-ups.

He continues to tap on his Parkinson's symptoms to keep the shaking under control. His wife has noticed that he seems happier and relaxed. He feels comfortable socializing now, and is a true believer in EFT.

* * *

EFT can be effective for PTSD in other groups of people too. A study of EFT was undertaken with adolescent boys (Church, Piña, Reategui, & Brooks, 2012). The participants were residents in a group home to which they had been sent by a judge because they were being abused at home. One group received a single session of EFT in which they tapped on their most painful childhood memories, while those randomized into the control group did not receive treatment. When they were followed up a month later, the boys who'd received EFT reported 91% less emotional triggering, and they had all normalized on the Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979), the questionnaire used to assess traumatic memories.

EFT has also been studied for its value in overcoming anxiety. In a trial comparing EFT and WHEE (another form of energy psychology) to cognitive behavior therapy (CBT) for test anxiety in college

students, both EFT and WHEE were found to work much faster than CBT (Benor, Ledger, Toussaint, Hett, & Zaccaro, 2009). Another study randomized high school students into either an EFT or a second group that received progressive muscular relaxation, which is effective in alleviating anxiety (Sezgin & Özcan, 2009). The group that received EFT had a much greater drop, with test anxiety reducing by 37%. EFT has also been studied in a randomized controlled trial for its effect on public speaking anxiety; participants overcame their fears and, compared to a control group, reported increased confidence after EFT (Jones, Thornton, & Andrews, 2011).

One of the most intriguing studies of EFT was done by Gunilla Brattberg, MD, a professor at Lund University in Sweden (Brattberg, 2008). She studied patients afflicted with the painful and debilitating symptoms of fibromyalgia, but their whole course of EFT treatment occurred online! They enrolled in an 8-week Internet course, and used EFT on themselves, after which they reported a 29% improvement in depressive symptoms, as well as a 22% drop in pain. As you read *The EFT Manual* and visit the EFT website, remember the fibromyalgia study. Even tapping along with an online course can help, and during EFT training you will learn a technique called "Borrowing Benefits," in which you'll find that just watching other people do EFT onscreen, or onstage, while tapping along yourself at the same time can make a difference.

Another study at the University of Santo Tomas in Manila, the Philippines, took a group of adolescent college students with moderate to severe depression and gave them four 90-minute group EFT classes (Church, de Asis, & Brooks, 2012). Their depressive symptoms dropped an astonishing 72%. The study of the 59 war veterans discussed previously found that as their PTSD decreased, their anxiety, depression, and pain reduced significantly as well (Church et al., 2013).

People in pain have also improved in several other EFT studies. These are open trials, in which the participants' symptoms are compared

before and after treatment. There is no control group, so open trials are regarded as a lower standard of proof than RCTs. For instance, pain levels would be measured in the same subjects before and after EFT, but without a placebo group or wait list to control against. Nonetheless, open trials provide us with valuable information; a person who has a big reduction in pain is not too worried about the fact that his or her pain (or depression or anxiety) is only being compared to how painful the injury was before treatment.

One study examined the effects of Borrowing Benefits EFT in a group of 216 health care workers (Church & Brooks, 2010). These were doctors, nurses, chiropractors, psychologists, alternative medicine practitioners, and those in similar professions. It found that their anxiety and depression improved significantly after a workshop in which they did Borrowing Benefits for 2 hours. Their pain dropped by 68%, and their cravings for such addictive substances as chocolate, alcohol, drugs, cigarettes, and coffee dropped by 83%. When they were followed up 3 months later, most of their improvements had remained stable, and those that had used EFT more frequently since the workshop had greater improvement than those who did not.

This study, performed by Audrey Brooks and myself, was modeled on the first open trial, which was conducted on the participants at an EFT workshop by Jack Rowe, PhD, who was then a professor at Texas A&M University (Rowe, 2005). He carefully measured psychological problems like anxiety and depression in 102 participants before and after the workshop, as well as at two follow-up points. He found that across the whole range of psychological problems, participants improved.

Together, these studies refute one of the early criticisms of EFT. Critics maintained that while EFT might work when Gary Craig delivered it, the results were due to some unique gift that only he possessed. In the Borrowing Benefits studies, however, no statistically significant difference was found between the people that received EFT from me and those receiving it from Gary Craig. In a follow-up study, no difference in results was found betwen various EFT expert practitioners,

indicating that the results were due to Clinical EFT itself and not some individual's peculiar talent (Palmer-Hoffman & Brooks, 2011).

A pilot study examined Borrowing Benefits in a group of 38 self-identified addicts, and also found that the breadth and depth of their psychological problems improved significantly (Church & Brooks, 2013). In all these studies, the benefits were consistent regardless of which trained EFT practitioner led the workshop, further demonstrating that it was EFT creating the psychological improvements, and not a particular instructor.

Another devastating condition with which EFT might help is traumatic brain injury (TBI). An estimated 100,000 U.S. veterans who served in Iraq or Afghanistan are thought to have TBI. Symptoms such as dizziness, balance problems, and severe headaches are characteristic of TBI. The research team studying PTSD in veterans was not expecting to find a change in TBI but was merely collecting data on the severity of the TBI symptoms that accompany PTSD. To their surprise, as PTSD reduced after six sessions of EFT, the average reduction in TBI symptoms was 41% (Church & Palmer-Hoffman, 2014). EFT has been used for a number of serious diseases, and a common experience is that, when the emotional roots of a problem are addressed, the physical symptoms can lessen or even disappear completely.

EFT has also shown itself to be helpful with weight loss. In an RCT conducted by Peta Stapleton and her colleagues at Griffith University in Australia, subjects showed a significant reduction in food cravings, just like the health care workers in the open trial (Stapleton, Sheldon, & Porter, 2012). Over the following year, this led to their losing an average of 11.1 pounds. Weight loss after a program ends is rare; the average dieter regains all or part of the weight (Curioni & Lourenco, 2005). This is infrequent with EFT; a study of an online EFT program found that participants lost an addition 3 pounds in the 6 months after the program ended (Church & Wilde, 2013).The lessons learned in this study and similar programs are summarized in the book *EFT for Weight Loss* (Church, 2013d).

EFT and Performance

EFT isn't just for sick people; it can help healthy people too. In a study of elite athletes, a 15-minute EFT treatment clearing out the athletes' anxieties worked wonders on their sports performance (Church, 2008). This RCT was organized by EFT sports coach Greg Warburton, and took place at Oregon State University, with Greg and I testing the men's and women's basketball teams. After testing the athletes for the number of free throws they could successfully score, and how high they could jump, one group got EFT, while the other got a placebo treatment. Afterward, the EFT group performed 38% better at free throws than the control group. Pat Ahearne, Australian League Pitcher of the Year, says, "I am so amazed with the effectiveness of EFT that I've made it as important a part of my baseball routine as throwing or running or lifting weights. I have more consistency, better command of my pitches, and I accomplish more in big games with less effort. Using EFT, I found the mental edge that raises an athlete from average to elite." Seth Joyner, former Arizona Cardinals linebacker, said, "Golf is a game of how you react mentally. One bad shot or hole can ruin a round. EFT has improved how I think on the course, my calmness and my concentration." As the Oregon State basketball players showed, EFT can help even peak performers improve their results. Using EFT in this way is described in the book *EFT for Sports Performance* (Howard, 2014).

One other question that researchers ask about EFT or any other treatment is, "Do the results hold over time?" In all the studies of EFT that included a follow-up, at least some of the gains that participants had experienced after treatment remained steady (Feinstein, 2012). In some studies, such as the PTSD veterans study, 86% of veterans were still below the clinical PTSD threshold after 6 months; in another study, the veterans had maintained their gains even after a year.

Mechanisms of Action

These studies, whether they're open trials or RCTs, are a type of research called "outcome studies" because they study the outcome of

an intervention. They answer the research question, "What happened as the outcome of treatment?" Another kind of scientific inquiry asks, *"How and why* did that happen? *What occurred in the body* to produce that outcome?" These studies, which look "under the hood" to find out how the engine works, usually take place years or even decades later than outcome studies. A new treatment such as EFT is typically discovered in practice, then has its effects measured in outcome studies, and finally has the "how and why" questions answered later on.

A number of scientific papers have been published in peer-reviewed journals that describe what happens in the body's nervous system, hormonal system, and genes in order to produce such rapid and dramatic change (reviewed by Feinstein, 2012). They show, among other findings, that *pressure* on acupoints is as effective as the insertion of acupuncture needles, that acupuncture sends fear-dampening signals directly to the limbic system, and that acupoint stimulation is an effective treatment for PTSD, depression, anxiety, pain, and other ailments. You'll find an updated research bibliography listing all these articles at www.Research.EFTUniverse.com.

With some colleagues and a large group of dedicated EFT volunteers, I designed a study that peered into the body's biochemistry (Church, Yount, & Brooks, 2012). We compared a group that received a session of EFT coaching against a second group that received a conventional talk therapy session. The study compared both to a third group randomized into getting no treatment at all, but just resting quietly in the waiting room of a clinic. Besides testing their levels of anxiety, depression, and other psychological problems, this RCT also measured subjects' levels of the signature stress hormone cortisol. When you and I are in fight-or-flight mode, and feeling stressed, our bodies produce more cortisol, and when we relax, our cortisol levels start to drop. Cortisol is also regarded as the main aging hormone, and the main weight gain hormone. When people are under prolonged stress, they make more cortisol, and their cells age and die more quickly. They also deposit more fat around the waistline, as all that blood

glucose mobilized for the fight-or-flight response is stored in the fat cells around the liver.

Our research team reasoned that if psychological symptoms such as anxiety and depression were dropping, cortisol should be dropping as well. So we measured cortisol just before the participants began their treatment sessions, and again half an hour after they finished. By that time, the psychological relief of therapy might be measured in the form of lower cortisol.

We found that cortisol did indeed drop in all three groups, but the surprise was just how much more it dropped in the EFT group. The participants who received talk therapy had a 14% reduction in cortisol, and those just sitting quietly in a healing environment had a similar drop. Those who received an EFT session dropped even further, with cortisol falling by 24%. Symptoms of depression, anxiety, and other psychological problems dropped more than twice as much in the EFT group as in the other two groups. A significant correlation was found between reductions in mental health symptoms and cortisol; the two were linked.

Cortisol also correlates with changes in those rapid-fire IEG stress genes and the sympathetic nervous system, which means that after EFT, the whole stress response in the body got the message to "stand down" and restore function to the immune system and all the other systems from which our physiological resources are drained when we're under stress.

Counterconditioning

The word "stress" was coined by the German physician Hans Selye in the 1920s. He noticed that many symptoms were common to most of the patients in the hospitals he visited, and he used the term "stress" for this collection of dysfunctions. His Russian contemporary Ivan Pavlov became famous for his demonstrations of the conditioned response. Pavlov would feed dogs when a bell rang. Later, when the bell was rung without food being present, the dogs salivated anyway. They had learned to associate the sound of a bell with food, and the

association produced the physiological response of salivation even when no food was present. In the language of behavioral psychology, the dogs had been taught a "conditioned response." American behavioral psychologist B. F. Skinner realized that these large behaviors could be broken down into small elements.

Meanwhile, in the 1950s, South African psychiatrist Joseph Wolpe experimented with "counterconditioning" in which a traumatic memory would be paired with an innocuous stimulus, leading to a gradual reduction in trauma. He called this "reciprocal inhibition." Wolpe and many subsequent therapists used "exposure," which means that a traumatic event is held in memory. While the client exposes him or herself to the stressful memory, therapeutic measures are taken to provide a new, nonthreatening stimulus that does not activate the fight-or-flight response.

In the 1970s, a new school of psychology, cognitive therapy, became ascendant over the behavioral school. Cognitive therapy and cognitive behavior therapy (CBT) are the forms of psychotherapy practiced predominantly today. Cognitive therapy focuses on changing "cognitions," the concepts about self and the world that we carry in our heads. We might, for instance, believe that the problems at our job are caused by the management, that the government is responsible for the country's problems, or that our relationship partner is the source of all the difficulties in the relationship. Since our cognition is that the problem is "out there," we feel little power to affect events. When our cognition shifts, and we recognize our role in maintaining the situation, we develop the power to change it.

A classic case cited by a cognitive behavior therapist is that of "Mr. A," a computer programmer (Craske & Barlow, 1993). He "requested treatment for panic disorder with agoraphobia. He had been symptomatic for at least 5 years. His condition had deteriorated to the point where he was largely housebound, although he was able to drive about half a mile to his workplace, where he worked in a cubicle and had little social contact. When Mr. A considered driving to the city to see an old friend or to a mall near his home, he would have thoughts such

as 'I can't do it…I'll faint or I'll have a heart attack…I'll panic and lose control…I'll have a wreck and kill everyone in my path.' As might be expected, he had intense anxiety and autonomic arousal associated with these thoughts. His behavioral response was to avoid driving anywhere other than work and to avoid going anywhere there might be crowds. Each time he avoided these activities, his basic fears were reinforced, and eventually his symptoms became deeply ingrained." The therapist used CBT techniques to challenge the client's cognitions, and helped him develop new thoughts that counterconditioned his fear.

Neural Plasticity

Together, CBT and exposure therapies have established a long and successful track record in the treatment of emotional trauma. Not only do we feel different when emotional trauma is released, but our brains rewire themselves around the new cognitions. As late as the 1980s, the prevailing view in the field of biology was that the human brain grew till about the age of 17, and was then fully grown, and static, thereafter. In the 1990s, experiments began to demonstrate that the neural pathways in our brains are in constant flux, and grow in response to stimuli, just as our muscles grow when we lift weights at the gym, or our genes are turned on by epigenetic signals (Kandel, 1999). The brain region most involved in memory and learning, the hippocampus, is enlarged, for instance, in the brains of London taxicab drivers. They have to master the complex tangle of streets in the ancient city, and so their brains grow new neurons in order to accomplish this memory-intensive task (Maguire, Frackowiak, & Frith, 1997).

In 2000, Eric Kandel, MD, won the Nobel Prize in medicine for showing that *within just 1 hour of repeated stimulation, the number of connections in a neural bundle can double.* That's like doubling of the amount of electrical cable used in the wiring of your house, and it's remarkable that the body can create so much new wiring so quickly.

The opposite also occurs. If we don't use a neural pathway, it begins to shrink. Based on how we're using our brains, they are being rewired

hour by hour and day by day, a phenomenon called "neural plasticity." That's a great term, because it conjures up a vision of a brain that is like putty, being shaped by the thoughts, feelings, and experiences being processed through it. People who have gone through a large emotional trauma, such as veterans suffering from PTSD, show changes in their brains over time, as flashbacks and intrusive traumatic thoughts and other negative stimuli rewire their neural circuits (Vasterling & Brewin, 2005). The brains of schizophrenics also show changes over time, and the genes that help them handle fear can become permanently shut down by the epigenetic signals sent by their psychological disease (McGowan et al., 2009). So CBT, exposure therapy, EFT, and other treatments that help relieve psychological suffering can produce positive changes in the wiring of our neuroplastic brains, as counterconditioned memories are turned into hardwired neural bundles.

EFT's most fundamental procedure is called the Basic Recipe, and it's described in the next chapter. While the Basic Recipe is very short, it borrows elements from all these earlier discoveries. The verbal part of EFT involves *remembering a specific incident with a strong emotional charge,* and combining the recall with *an affirmative statement of self-acceptance.* The element of recall involves *exposure.* The exposure part of EFT is then paired with the affirmation in order to introduce *cognitive change* in the form of accepting the situation. This counterconditions the conditioned stress response that your body has to the memory of the traumatic event.

When the conditioned response has been successfully counterconditioned by EFT, you can still remember the stressful event. In fact, your memory might get even clearer. However, the memory no longer triggers a stress response in your body. After the calming experience of EFT has been associated with the memory, the memory is no longer tagged by the body as a cue to go into fight or flight. Instead, it has a neutral emotional tone. Once you break the conditioned response, you can think of the memory again without any emotional charge. The memory remains, but the emotional association is gone, and your

cognitive experience of the memory shifts. EFT thus uses elements of both CBT and exposure therapy in its verbal components.

In 2007, the Institute of Medicine (IOM) published a landmark report (Institute of Medicine, 2007). The IOM is the medical arm of America's National Institutes of Health (NIH), the government body responsible for health care standards and research, conducted a review of which treatments were effective for PTSD by carefully examining all the scientific studies performed to date. It found that CBT and exposure therapy were the most effective treatments available. Though in 2007 no studies on EFT for PTSD were yet complete and available to IOM reviewers, subsequent reviews by government bodies will include them.

Dr. Callahan's First Experience

One of the best-known single-session case histories in the field of energy psychology was described by psychologist Roger Callahan and dates from the late 1970s (Callahan, 2013). A client he calls "Mary" had a longstanding phobia of water. Her parents reported that she had exhibited a marked phobic response to water since infancy. Now in her 40s, she was still frightened every time it rained. She could not take baths in a tub full of water. Though she lived near the ocean, the mere sight of it caused her so much anxiety that she never visited the beach. She had frequent nightmares of being engulfed by water. Callahan worked with Mary using conventional techniques for 18 months but made little progress. He had a swimming pool near his home office, which he used to test her phobic reaction. The best result he had been able to obtain was having her sit on the edge of the pool and dangle her legs in the water, though even this degree of proximity triggered marked anxiety.

Mary had told Callahan that when she thought of water, she had a sick feeling in the pit of her stomach. Callahan had recently learned about acupuncture points and meridians, and knew that the end point of the stomach meridian was located under the pupil of the eyes. During one session, "not expecting much of anything to happen,"

Callahan suggested she use her fingertips to tap under her eyes. She did so, and exclaimed that the feeling in her stomach had vanished. She leaped from her chair and ran to the pool. Her fear of water had vanished. The nightmares ceased, and when followed up almost 30 years later, Mary's water phobia had not reappeared.

This experience led Callahan to experiment with a variety of acupressure points for a variety of psychological conditions, publish his findings, and eventually develop the therapeutic method called Thought Field Therapy or TFT (Callahan, 1985).

Along with tapping, TFT incorporates elaborate diagnostic procedures using muscle testing, which has the therapist apply pressure to opne of the client's muscles. Muscle strength is tested before and after treatment, to determine if the muscle tests stronger or weaker. TFT also taps acupoints in a particular order depending on the diagnosis; Callahan calls these tapping sequences "algorithms" (Callahan, 2000).

EFT dispenses with muscle testing and the entire suite of diagnostic procedures central to TFT, and it taps only on specified points. As there are only 12 tapping points and it takes under 2 minutes to tap them all, the points tapped in all possible treatment algorithms can be addressed in a very brief time frame. This allows many more troubling emotional memories to be treated in a single session. It also allows EFT to be learned quickly, and self-applied. EFT's tapping is done while using exposure, an established technique for treating trauma, in combination with cognitive shift, the other technique found to be effective by the IOM review. EFT thus combines the powerful Eastern energy techniques of acupoint stimulation with the best Western approaches, embodied in cognitive and exposure therapies, to produce rapid psychological shifts.

EFT research is still in the early stages. When Dr. Callahan and then others discovered that deep-seated psychological problems could be cured with miraculous speed, there were few answers from science as to how this was possible. Epigenetics and neural plasticity had not yet been discovered. Acupuncture had been around for thousands of

years. So these pioneers, looking for explanations, seized on energy, acupuncture meridians, and quantum physics. Gary Craig generalized even further, stating that "The cause of all negative emotions is a disruption in the body's energy system." He called this the Discovery Statement and gave it central importance in his explanation of how and why EFT works (Craig & Fowlie, 1995). These "magical" explanations seem quaint today now that we know the role of genetics, stress hormones, early childhood experiences, behavioral conditioning, and neural signaling in the experience of negative emotion. We now have explanations for EFT's rapid effects that are grounded in solid science.

It's not uncommon for innovations such as EFT to be observed first in the clinic, then in outcome studies, and finally in "hard science" experiments. The history of medicine is full of treatments that followed the same path. Doctors used aspirin for a century, observing that it worked, before they discovered *how* it worked. The same is true for quinine, and many other treatments. The development path for proving EFT is typical of a new approach, and as additional studies are conducted, we'll get a better and better understanding of the mechanisms by which EFT works its magic in the body.

Studies like the ones described in this chapter provide *objective* evidence that EFT works. As you learn more about EFT, and dive into doing it yourself, you will quickly have *subjective* experiences of just how startlingly fast your body can respond. As you recall traumatic events in your life, whether they happened in early childhood or an hour ago, you'll feel exactly what it feels like to have an electromagnetic energy shift in your body. You'll feel your stress level receding as your levels of adrenaline and cortisol drop, and your sympathetic nervous system calms down. You'll quickly understand that you don't have to be afraid of dealing with your past emotional wounds. You now have a tool that allows you to release that stuck energy and your old biological patterns. It gives you the gift of emotional freedom.