

[<http://talentdevelop.com/articlelive/articles/946/1/Talking-to-the-Amygdala-Expanding-the-Science-of-Hypnosis/Page1.html>]

Articles and resources: Talent Development / Personal Growth

Published 06/4/2009

Talking to the Amygdala: Expanding the Science of Hypnosis

By Muriel Prince Warren, DSW

Abstract: Recent brain research indicates that it is possible to talk to the amygdala, a key part of the brain that deals with certain emotions.

The inner mind is concerned with emotion, imagination and memory as well as the autonomic nervous system which automatically controls our internal organs.

By talking to the amygdala, an experienced hypnotherapist can relax the autonomic nervous system shutting down, or curtailing the trigger that sets off secretion of the adrenal and pituitary glands.

This gives the body an opportunity to rebuild its immune system in many chronic illnesses.

When a patient is in a hypnotic trance the amygdala automatically shuts down the rapid alert system and turns off the stress hormones epinephrine, corticotropin, and glucocorticoids.

I have tried to talk to the amygdala in a number of critical cases including a 22-year-old woman with diabetes and a fear of hypodermic needles, 40-year-old male with osteosarcoma and prostate problems, and a 75 year-old man with kidney failure.

In each case, the technique of relaxation through hypnosis has proven a highly effective tool in giving the body a chance to heal itself through its own inherent wisdom system. This is the part of the mind that knows how to make you breathe and send oxygen to your blood cells.

David Barlow of the Boston Center for Anxiety and Related Disorders claimed in a Newsweek article (Feb. 24, 2003) that it is actually possible to talk with the amygdala, a key component of the brain that deals with emotions like fear. Since this idea was consistent with the basic tenets of hypnosis, it intrigued me.

“Hypnosis is a way to access the untapped power of the mind and alter brain functions.

"In this state of intense relaxation and concentration, the mind is able to focus on positive suggestions which can be carried out at a future time. These subliminal messages are surprisingly powerful.

"The mind is like an onion. The outer layer, or conscious mind, deals with intelligence, reality, and logic. The inner mind is concerned with emotion, imagination, and memory, as well as the autonomic nervous system which automatically controls our internal organs (i.e., how we breathe, send oxygen to our blood cells, or walk without using the conscious mind.) The internal mind is on autopilot, reacting to the dictates of the pleasure principle. It seeks pleasure and avoids pain" (Warren, 2003, pp. 175-6).

It is these characteristics that make hypnosis a highly effective therapeutic tool in dealing with a wide spectrum of mental and physical disorders. When a therapist is doing hypnosis, the amygdala is turned down.

Therefore, I call this “talking to the amygdala.”



The hypnotist can actually relax the autonomic nervous system, shutting down the usual “fight, flight, or freeze” response and curtailing the trigger that sets off secretion of the pituitary and adrenal glands.

This gives the body a chance to build up its immune system and reduce trauma (Frank and Mooney, 2002) in many chronic illnesses (i.e., irritable syndrome, bulimia, cancer, high blood pressure, and Parkinson’s disease.)

Even the Wall Street Journal (Friedman, 2003) has documented how hypnosis has entered the mainstream and is using trance states for fractures, cancer, and burns and speeding recovery time.

Dr. David Spiegel, Stanford University researcher, speaking at the 54th Annual Conference of the Society for Clinical and Experimental Hypnosis, November, 2003, in Chicago reminded us that although we don’t fully understand how it works, there is significant evidence that hypnosis can be effective in helping people reach into their own unconscious resources to solve problems normally beyond their ability.

Not only does it work, but it often succeeds where modern medicine has failed.

That evidence continues to pile up. Hypnosis is now being used in dentistry, fertility, childbirth, allergies, eating disorders, headaches and improved academic and sports performance. Eleanor Laser, PhD. assists physicians like Elvira Lang, MD by performing hypnosis and analgesia during operations at the Harvard and Iowa University Medical Schools.

Hypnosis is not sleep, but an altered state of consciousness in which a person accesses that part of his or her mind that is capable of adjusting the problem without the conscious, thinking mind directing it.

In addition to being a psychotherapist, author, researcher, and educator in private practice in Rockland County, New York, I am also an experienced hypnotherapist. So I decided to put David Barlow’s statement to the test. Patients don’t have to know where the amygdala is located and what it does.

The unconscious mind knows. The unconscious mind knows how to work without the conscious mind directing it. That’s one thing I have learned from years of conducting hypnotherapy. You can rely on the patient’s unconscious mind to come up with the answers, while the therapist contributes positive suggestions.

First, I did a little research on the amygdala and was surprised to find that tremendous progress has been made in just the past few years in our understanding of the brain and how it works. I was also amazed that no one has put it all together in one place. So I thought I would conduct my own experiment.

The Amygdala:

The amygdala is located on either side of the middle of the brain known as the Limbic System. There are two of them, each 1.5 centimeters – the size of a walnut. The amygdala is critical for certain kinds of negative emotions, particularly fear, but it can also provide an important link to creativity and increased intelligence.

Richard J. Davidson, Director of the Laboratory for Affective Neuroscience and the W. M. Keck Laboratory for Functional Brain Imaging and Behavior at the University of Wisconsin in Madison

has studied this area of the brain and mind-body interaction since 1999. He explains that many parts of the brain work together to produce complex behavior such as emotions (Gyatso, T. and Goleman, D. 2003).

It was found that the amygdala plays a key role in the circuitry that activates emotion, while the prefrontal cortex does much of the regulation. Evidence suggests that regions of the left frontal cortex play an important role in positive emotions while the right frontal lobe plays that role in certain negative emotions.

Another key part of the brain is the hippocampus, a long structure directly behind the amygdala which has been linked to memory. The hippocampus is essential for the appreciation of the context of events. Some emotional disorders such as Post-traumatic Stress Disorder and Depression involve abnormalities in the hippocampus. In both these disorders, it was found that the hippocampus actually shrinks.

The amygdala, the hippocampus, and the frontal lobes (p. 193) are all extensively connected with the body, in particular with the immune system; with the endocrine system which regulates hormones; and with the autonomic nervous system that regulates heart rate, blood pressure and other functions.

The brain provides a complex system of feedback circuits involved in the reaction to stress and trauma. This process starts (Sapinsky, 1993) with the actual or perceived threat of death or injury that activates the higher reasoning centers in the cortex. The cortex, in turn, sends a message to the amygdala, which is the principal mediator of the stress response.

The amygdala then releases corticotropin-releasing hormone to stimulate the brain stem to activate the sympathetic nervous system by way of the spinal cord. This triggers the adrenal glands, located atop of the kidneys, to release epinephrine and glucocorticoids.

These two hormones act on the muscles, heart, and lungs to prepare the body for the “fight,” “flight,” or “freeze” response.

When the stress becomes chronic, glucocorticoids induce the locus coeruleus to release nor epinephrine that makes the amygdala produce even more CRH and other stress hormones as the reaction escalates.

Dr. Hillary P. Blumberg, and a team of researchers at Yale University (Scanning a Brain, New York Times, Dec. 30, 2003) have found that the amygdala and hippocampus are much smaller in teenagers and adults with bipolar disorder. That finding may provide doctors with a new tool for early diagnosis and treatment of the disorder. Teenagers and adults with bipolar disorder are at high risk for suicide.

Recovery function is the time it takes for a person to come back to a quiet baseline condition of the brain after being provoked by an emotion as in a traumatic event. Certain people have a prolonged response and others return to the baseline very quickly. It has been shown that people with quick recovery function have less activation in the amygdala.

The amygdala and hippocampus in their brains are larger and a more normal size than those of anxious people. These people show more activation in the left prefrontal cortex. They report that their everyday experience is filled with feelings of vigor, optimism, and enthusiasm (Gyatso, T. and Goleman, D. 2003, p. 197).

Other Research:

Other research projects have centered on the memory which has been linked to adrenaline, the hormone secreted by the adrenal glands in response to anxiety, stress, and fear. Dr. Jim

McGaugh at the University of California at Irvine demonstrated that rats injected with adrenaline just after learning a task had enhanced retention (Friedman, 2003)

Dr. Larry Cahill also at Irvine shows that blocking the effects of adrenaline could prevent emotional arousal from enhancing memory. That implies that any emotionally charged situation that causes adrenaline release will produce stronger memories.

Dr. David Barlow of Boston University's Center for Anxiety and Related Disorders, claims that we can actually talk to the amygdala and reduce stress in our minds and bodies.

As a hypnotherapist, I know that the unconscious mind is best addressed by hypnotic language in a trance state

I was further encouraged by numerous scientific studies in recent years showing that the hypnotized mind can exert a real and powerful effect on the body.

Hypnosis is increasingly being used today to help women give birth without drugs, for muting dental pain, treating phobias and severe anxieties, helping people lose weight, stop smoking, or even improve their performance in athletics or academic tests (Wall Street Journal, Waldholz, 2003).

The stage was set for my first trial.

Three Cases:

My first example involves a patient who feared an upcoming operation and the possibility of his blindness or death. He explained that he was a professional golfer, and had been diagnosed with osteosarcoma.

His physician had just found a tumor the size of a golf ball behind his left eye. He had been warned that he had a slim chance of retaining his eyesight and having the tumor removed. Furthermore, there was a real possibility that he would not make it through the operation. We had five consecutive sessions during the week before his operation. The patient told me that he was a multimillionaire at age 40.

All he wanted was to play golf, and his wife would not let him. He was deeply depressed and without a "causa sui" (a reason for living) (Becker, 1983, p. 119), and often dreamed of dying. Dr. Norman Shealy, a Harvard-Trained neurosurgeon and researcher, and many others have concluded that the immune system becomes compromised by depression, stress, anger, and guilt, leading to many diseases including cancer.

In each hypnosis session, I relaxed the patient's amygdala, shutting down the fear and enhancing the outcome. I did not explain to the patient that I was talking to his amygdala, but under hypnosis in a trance state, the amygdala shuts down the stress hormones, giving the patient an opportunity to rebuild his immune system. I am not a golfer.

But I suggested that when the surgeon drilled into his skull, he would hit a hole in one and the tumor would pop out. On the day of the operation, the patient showed no fear of the procedure. When the surgeon made the initial incision just behind the eye, the tumor simply rolled out of his head without further intervention. The patient arrived at my office the following day with his eyesight intact and nothing but a band aid covering the incision.

The tumor was sent to Johns Hopkins and the Mayo Clinic for analysis. To this day, the surgeon and his colleagues don't understand what happened. They think they made an error in diagnosis. The tumor was just not as serious as they originally thought.

This patient has decided to become a golf coach, thereby reducing his depression and finding a, "causa sui." His immune system was now functioning well. About six months later, he began having difficulty with his prostate.

Because of their constant fighting, his wife turned to smoking pot which made her amorous. His amygdala was activated by her sexual demands and the fear that he would not be able to perform.

The prostate is a male sexual gland that surrounds the neck of the bladder and the beginning of the urethra. The gland secretes a thin opalescent fluid that forms part of the semen.

An activated amygdala doesn't wait around for instructions from the conscious mind," explains Claudia Haub (Newsweek, Feb. 24, 2004, p. 46). Once it perceives a threat it can trigger a body wide emergency response within milliseconds.

Jolted by impulses in the amygdala, the nearby hypothalamus produces a hormone called Corticotrophin Releasing Factor, or CRF, which signals the pituitary and adrenal glands to flood the bloodstream with epinephrine, adrenaline, nor epinephrine and cortisol. These stress hormones then shut down nonemergency services such as digestion and immunity, and direct the body's resources to fighting or fleeing.

The heart responds, the lungs pump, and the muscles get an energizing blast of glucose.

The stress hormones also act on the brain , creating a heightened awareness and supercharging the circuitry involved in memory formation.

In autoimmune diseases, the immune system is confused and attacks the body. Hypnotherapy can help stimulate healthy immune system functioning where only foreign invaders or mutant cells are attacked. A general understanding of how autoimmune diseases operate is helpful to patient and therapist alike. Sometimes pictures of the disease process and immune system help to facilitate the internal changes necessary for healing or remission.

This patient underwent tests which indicated a PSA of 2.4 ug/L. We began hypnosis focused on his prostate. In a quiet, relaxed state, I asked him to locate the pipe that controlled his prostate gland, reminding him that the back of his mind knew better than I just how to put it in working order. His PSA level has now been reduced to 1.66 ug/L. (The normal range is 0.0 to 4.0.)

Perhaps even more dramatic is the case of a 75-year-old man with kidney failure who was facing the prospect of dialysis. This patient had been through three heart attacks and showed an allergic reaction to the contrast or dye used in angioplasty. His kidney function, as measured by the level of creatinine in his blood, had declined to about 20-25% of normal.

Using the same technique of inducing trance and reducing all stress hormones, I asked the patient to visualize himself in a healing garden, and using all of his senses, imagine through the powers of his own pure subconscious mind -- which knows better than I do -- sending healing energy to the parts of his body that need it most. In a sense I was using his own intuition to empower him.

After three sessions of hypnosis focusing on improvement of his kidneys, blood tests showed his creatinine level was reduced from 3.0 to 2.0, equivalent to approximately 50% of normal and a 100% improvement. Although his kidneys are not perfect, dialysis is no longer necessary. We are now working on his carotid artery which shows a partial blockage.

Serious medical malfunctions are not the only areas susceptible to the power of hypnosis.

This case involved a 16 year-old girl who was failing math with a 53 average despite attempts to tutor her.

After three months of hypnosis once a week, her average climbed steadily to an amazing 85.

Through hypnosis, I was able to shut down the stress hormones that can impair memory and taught her how to anchor those feelings of calmness.



Eventually, she was able to perform her own self-hypnosis prior to scheduled tests at school.

I helped her to realize that her brain was like a computer, only better. In fact, it was the prototype for all manmade computers.

We went over the fact that in the first five years, she learned more than at any other time in her life.

She learned a language, to tell one person from another, to distinguish different objects, to begin mastery of her ABC's, how to color, brush her teeth, and many other things.

All of this was data she was able to program into her brain before she was five years old.

Now that she was 16, those tasks slipped in to her subconscious mind.

Just like breathing or sending oxygen to her blood cells, she didn't have to think with her conscious mind about how to do it.

The same principle holds true for math, science, and anatomy. Only now, it is much easier. Data we store in our computer brain can be retrieved just the way we retrieve the method for tying our shoelaces.

First, the patient is given a simple way to anchor the feeling of calmness, perhaps by simply placing his pointer finger and thumb together, putting her into a state of self-hypnosis so the stress hormones do not interfere with her memory bank.

Then she is told to tackle the easiest questions first, giving the patient a feeling of success. Success breeds success. Reducing stress hormones and strengthening the ego combined with desensitization helps patients with school and test-taking.

I can't claim that every case is an absolute success, but I can say that more and more and with the perseverance of my patients, I have been getting better and better results.

As Stephen Kahn and Erika Fromm have told us, therapists go through change every day. The profound transformation in my work came about with the understanding of how hypnotherapy works.

Until then, I was confident it worked, but I didn't understand how. That understanding has reassured me and made it possible for me, in turn, to reassure my patients. As continuing research unlocks the secrets of the brain, hypnosis will emerge, breaking the barrier between art and science.

There are other cases, some more critical than others, but they all end the same way.

In all cases, even the patients find it difficult to accept that hypnosis was effective in eliminating the problem. They sometimes would prefer to think that the original diagnosis and the laboratory

tests had been wrong.

Since it often appears so simple, hypnosis may not get the credit it deserves.

The main thing is that the problem that brought the patient to me has been solved.

METHOD:

Let me clarify what I mean when I say “talking to the amygdala.” When I hypnotize a patient, the amygdala normally shuts itself off. The body and mind are at rest. There is no fight, flight, or freeze response, and all stress hormones are shut down.

The patient is constantly reassured that he/she is in control, and that the patient’s unconscious mind will intuitively know where to direct the healing power. The critical point is that the patient’s brain knows how to solve the problem even if the patient doesn’t consciously know that he knows.

The procedure is no different in principle from any hypnosis session, and consists of six discrete steps: (1) Set-Up, in which the subject is reassured of his/her control and offered the choices of staring at a spot on the ceiling, opening or closing their eyes, etc.;

I often tell them that I don’t want them to go into a trance too fast or too slow. It is all up to the patient.

This reinforces their sense of control; (2) Induction, direct or indirect using parallel process narratives to reinforce the realization of the power of the brain, in which the patient enters the trance state and goes to a deeper and deeper level.

An example of parallel process narrative might be [Milton] Erickson’s famous story in which a horse wandered into his family’s yard when Erickson was a young man. The animal had no identifying marks, (Rosen, 1982) but Erickson offered to return the horse to its owners.

In order to accomplish this, he simply mounted the horse, led it to the road, and let the horse decide which way he wanted to go. He intervened only when the horse left the road to graze or wander in to a field.

When the horse finally arrived at the yard of a neighbor several miles down the road, the neighbor asked Erickson, ‘How did you know that that horse came from here and was our horse?’ Erickson said, ‘I didn’t know – but the horse knew. All I did was keep him on the road.’ pps.46-47.

The analogy is obvious. Like the horse who knew his way home without intervention, the unconscious mind knows instinctively how to solve the problem; (3) Talking to the amygdala, in which the therapist uses metaphors and ego strengthening suggestions to facilitate healing intuitively like trees that are barren in winter and flourish in spring.

I sometimes suggest they can marvel at the metamorphosis that took place overnight. You know that your pure subconscious which is active day and night can repair, rejuvenate, and regenerate creating new energy and sending its intuition to the part of the body that need it most. You may be amazed or surprised where it sends it first.

My voice will disappear while the back of your mind – your pure subconscious - allows you to do the work. When you are ready to continue, you can let me know by wiggling your finger.

This is known as ideomotor signaling. Even though the patient may not have consciously heard what I said, his or her unconscious mind heard me.

This suggests that a call on the patient’s unconscious mind to solve the problem, assuring the (4)

Post-Hypnotic Suggestion, in which the patient is reassured that he/she will awake feeling physically well and refreshed with no ill effects from the trance.

I often give them a post-hypnotic trigger, on the form of words or anchors that help them stay calm so the healing can continue.

An example might be the words "easy control." Another anchor would be to put their pointer finger and thumb together anytime during the day they feel the need to calm down; and (5) Return, in which the patient is brought gradually to full alertness. Then we discuss their experience and how it felt.

References

- Becker, E. (1973). *The Denial of Death*.
- Frank, D. and Mooney, B. (2003). Hypnosis and Counselling in the Treatment of Chronic Illness.
- Friedman, R.A. *Traversing the Mystery of Memory*. New York Times. December 30, 2003. p. 5.
- Gyatso, T. (Dali Lama) and Goleman, D. (2003). [Destructive Emotions: How Can We Overcome Them?](#)
- Hammond, D.C., Ed., (1990). *Handbook of Hypnotic Suggestions and Metaphors*.
- Laser, E. and Lang, E. (1996). *Methods of Non-Pharmacologic Analgesia: A Sourcebook for Practitioners*. The Methods of Non-Pharmacologic Analgesia Workshop, University of Iowa Hospital..
- Myss, C. and Shealy, N. (2002). *The Holographic View of Body, Mind, Emotion, and Spirit, Session 4. (CD-ROM)*. The Science of Medical Intuition. Sounds True. Boulder, CO.
- Rosen, S. (1992). *My Voice Will Go With You: The Teaching Tales of Milton Erickson*.
- Saplinsky, R. (1993). *The Vicious Cycle of Stress*. Scientific American, pp. 81-91.
- Scanning a Brain for Bipolar Root. (December 30, 2003). New York Times.
- Spiegel, David. (2003). Presentation at the 54th Annual Conference of the Society for Clinical and Experimental Hypnosis, November, 2003, Chicago, IL.
- Waldholz, M. [Altered States: Hypnosis Goes Mainstream](#). Wall Street Journal, Oct. 7, 2003.
- Warren, M. P. (2004). *Trauma: Treatment and Transformation*. New York: IUniverse.