

## Neuro-Immuno Psychology

Anil Thomas  
NLP Master Practitioner &  
Gestalt Therapist  
Mumbai, India

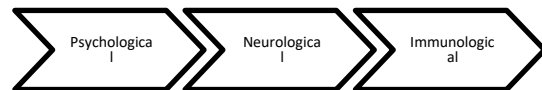
Ananya Ramesh  
School of Allied Health Sciences,  
Manipal University  
Chennai, India

Psychoneuroimmunology, an evolving field, is made of three parts. Thoughts (psycho-) control the brain (neuro) that further influences the immune system (immunology). In this article, through demonstrations, research evidence, illustrations, and live examples, we will understand how our perception and beliefs of our environment actualize our body's ability to heal itself.

*Keywords:* Thoughts, Immune System, Perceptions, Beliefs.

### Neuro-Immuno Psychology

Psychoneuroimmunology comprises the study of three main components, namely, psychological factors, neurological processes, and immunology. Psychological factors refer to thoughts and cognition, neurology to the brain and the nervous system, and immunology to the study of our immune system. It is a growing field that explores how psychological factors and neurological processes affect the functioning of our immune system (Dilts, n.d.). The immune system is a natural intelligence and healing system; it is the way our body corrects itself. Psychoneuroimmunology has its basis on the idea that psychological factors influence the functioning of various aspects of our nervous system, which consequently affects our immune system to some degree.



To put it simply, the invisible energy of thoughts can create feelings of external and internal biology. External biology includes body posture, orientation, behaviors, languages, attitudes, and the like. Internal biology consists of the hormones that get released by the endocrine system. Several physiological findings support the ideology of a direct relation between neurological reactions and immune system responses. The thought that you think happens in the form of visual, auditory, kinesthetic, olfactory, and gustatory modalities, commonly referred to as VAKOG. This thought, in turn, creates chemicals in our body (feelings of external biology and internal biology). In this article, we mainly focus on our internal biology and the immune system.

A defense mechanism is a sort of internal security system, which continuously scans and searches the body for a foreign body to fight it. It not only fights the foreign body, but it also memorizes it so that it can fight the same even more effectively in the future. What this means is that the immune system can learn. However, if you invoke stress hormones, it suppresses the function of the immune system, thereby compromising the immune system. Before we elaborate on psychoneuroimmunology, it is essential to orient ourselves to three types of stressor injury. These include physical stress (accidents, falls, surgery, trauma, etc.), chemical stress

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This research was done by Anil Thomas and co-authored by Ananya Ramesh.  
Editing and reviewing credit: Aalia Passanha.  
Sub Editor: Susan Cutinha  
Correspondence concerning this article should be addressed to E-mail: [office@ijnngp](mailto:office@ijnngp)

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(hangovers, blood sugar levels, hormones, foods, etc.), and emotional stress (job loss, financial issues, familial problems, etc.). Such stress creates imbalances in the body and brain.

### Immune System

People always believed that the immune system operated separately from other bodily structures. Edward Blalock, in the early 1980s, made a breakthrough, challenging our existing idea of being composed of separate autonomous systems (Blalock, 1992). Lymphocytes (cells part of our immune system) produce interferons, which are peptides, and Blalock studied these interferons. His experiment involved stimulating lymphocytes to generate interferons. Interestingly, a variety of other peptides, which until then were purely associated with endocrine glands, were also produced along with interferons (Blalock, 1992). This discovery implicated that each immune cell produced and received peptides: the molecules of information and emotion already found in the brain and other sites throughout the body. His findings were not taken well by the research community as they went completely against the firmly held belief of the workings of the immune system. Despite such disregard, Pert and her colleagues investigated Blalock's findings, and soon enough, Blalock's research could no longer be discredited. Pert and her colleagues found that the immune system can send information to the brain via immune peptides- as well as receive information from the brain via neuropeptides (Pert, 1997). Pert's study agreed with Blalock's and indicated the existence of an underlying chemical means, which allowed for communication between the immune system and other bodily parts, such as the endocrine system and the brain. Peptides, which regulate physiological functions, which are also associated with emotions, make up this chemical network. What this finding means for us is that it is possible to interact with our immune system through other bodily structures.

### Research Findings Backing

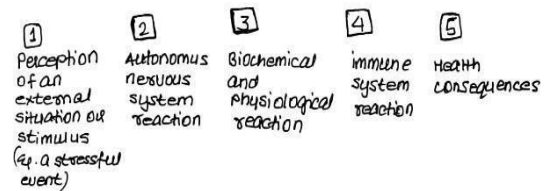
#### Psychoneuroimmunology

Since the early 1980s, the field of psychoneuroimmunology has produced many breakthroughs. This statement is especially true as regards our knowledge of the interaction between the brain and the immune system. For example, we consider it common knowledge that stress and emotions change blood chemistry, thereby affecting the immune system and its functioning. With that

said, immune cells display a capacity to respond directly to the same chemicals with which our brain and nerve cells communicate.

### Stress

Stress hormones, such as corticosteroids, inhibit the immune system. Sometimes this is helpful. For example, after transplantation of new organs or tissues, corticosteroids are used to suppress the immune system so that it does not identify the new organ as a foreign body and reject it. However, most times, it is harmful. When the immune system is suppressed, the nervous system has to work extra hard to get the body back to homeostasis, and this is how it gets compromised. As per research findings, the pathway between "mind" and "body" can be hypothesized as a five- step process (Dilts, n.d.):



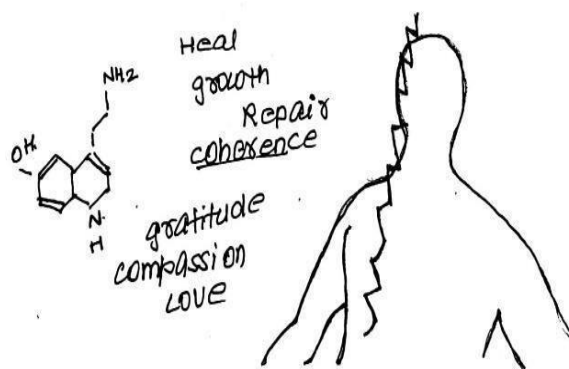
In one study, rats were given red-coloured, sweetly flavoured water (Ader & Cohen, 1981). Initially, the researchers gave the rats water contaminated with a substance that suppressed the rats' immune responses. The researchers measured the time it took the rats to figure out that the water was causing their illness and stopped consuming it. The researchers then ceased to taint the water and measured the duration it took the rats to deem the water as being non-toxic to drink. Well into the study, the researchers began to notice that several rats were dying at a very early age despite drinking perfectly safe water. However, when they measured the immune system functioning of the rats, they found that it was radically suppressed, especially after the rats drank the water. Through the process of conditioning, they were restraining their immune responses to the point of their destruction. This experiment brings us to the question – How is it that some people can heal themselves faster, while some fall sick faster and some are stuck? The truth is that we are not at the mercy of something. We create these realities by choosing where to focus, by choosing which behaviours we are replicating continuously. A more detailed answer to this lies with Dr. Bruce Lipton, a stem cell biologist, and author, as outlined below.

### Genetic Activity

People believed that genes controlled them until recently. Bruce Lipton's study revolutionized the assumptions of cell science. He found that people have power over their genes and are not merely slaves to the same (Lipton, 2005). He discerned that the way we perceive our environment, and not just the environment, regulates our genome. This finding helps us understand why people can have spontaneous or radical remissions and recoveries from disabilities deemed permanent. This breakthrough forms the foundation in healing as it acknowledges that, by altering our beliefs, modified messages to our cells are sent, thereby changing the way they are expressed. This revolutionary field is called epigenetics (Lipton, 2005). He eloquently speaks more about this in the documentary "Heal" (Shomer, Morrisey, & Noonan, 2017). He says biological organisms adapt their biology to fit into an environment. An example quoted by him involved the liver cells. He said they should be adapting according to environmental happenings. However, the liver cell is not touching the surrounding, so how does it happen? He says that it relies on the nervous system to receive information about what is going on around us so that the cells can adjust accordingly. Consciousness is an interpretation, so our mind is interpreting the environment. If we change our perception, our mind, change our belief about life, we change the signals entering and altering the function of the cell. By our ability to change the environment and to change our *perception* of the environment, we can control our genetic activity. We are not a victim of our heredity, but a master of our genetic activity.

### Emotions

Gregg Braden, a five-time New York Times best-selling author and scientist, spoke of this connection (Shomer, Morrisey, & Noonan, 2017). He mentioned that an emotion exists in our hearts, that emotion sends a signal to our brain. The quality of that signal determines what the brain does in response to the feeling. Take a cue from the heart to the brain that is a smooth series of waves: nice, even, coherent. The brain will match this level, even, and organized chemistry, and it will release the chemistry that supports life in our body. This process determines how immune systems become strong; a super-immune response.



On the other hand, let's explore stress chemistry – when we feel frustrated, angry, jealous, or are afraid, it produces a signal that is kind of like a “bad day on the stock market.” A lot of chaotic, jagged, unorganized waves going from the heart to the brain. The brain receives those waves and matches this stress chemistry.



Along these lines, one research study (Pert, 1997) found many intriguing associations, such as one between cancer (wherein the immune system is incapable of handling potential cancer cells effectively) and anger suppression. They also found an association between the potential risk of developing myocardial infarction and extreme aggression, a relation between a high resistance to some viral infections and happiness. A particularly intriguing example given by Pert includes the speculation that we do not develop colds when we are eagerly anticipating something, such as skiing. This occurrence may happen because norepinephrine (a neurotransmitter involved in emotions) prevents rhinovirus (an infectious virus and a predominant cause of common colds) from entering the cells by blocking the receptors that allow the same. When we think about an unpleasant event from the past, it becomes a learned behaviour. The body is so used to that negative emotion that it becomes a trigger. Automatically, stress gets built up, consequently compromising the nervous and immune systems.

## Language of NLP

### 1. Reframing

Reframing helps a person to adapt. It allows a person to utilize preserved energy for events that matter and to prevent a disease/adversity from taking over their identity (Blake, 2002). Rather, they reframe the event as if something else is happening in their lives. It is a potent tool, especially concerning health issues. If one wants to change their reality, they need to think about what they are thinking (metacognitive skill). People often define their biology in the past. They tend to forget that their body is in the present, devoid of stress. In the past, they compromised their body, their immune system. By thinking about it today, they bring past trauma to the present, creating their biology based on the past. Why not make our biology from the future point of view? Why not define themselves by the vision of the future? The path to the future is not through the emotions of the past but the learnings of the past. When we look at previous happenings, we need to separate the feelings from the wisdom and look ahead. The latest neuroscience research has shown that we can change the way our brain functions with a thought (Pert, 1997). Pert wrote about several associations she made among her and her colleagues' investigations as well as holistic healing approaches. She identifies that it is possible for memories and their corresponding emotions to get 'frozen' within specific muscle structures. This finding agrees with methods like healing massage. Nodal points containing specific peptides and associated receptors can be likened to the conventional acupuncture points used in Eastern medicine. Focused breathing, a technique found in Yogic literature, is extremely powerful. She claims that comprehensive data points to the fact that alterations in breathing modify the quantity and selection of peptides that are discharged from the brain stem and vice versa (Pert, 1997). Our conscious, personal experiences and physiological functions interact to produce emotions - "emotions are the nexus between matter and mind, going back and forth between the two and influencing both." (Pert, 1997).

### 2. Coding experiences at logical levels

We experience things differently. We perceive certain things as part of our environment, as our abilities, thoughts, beliefs, identity, values, and all the way up to spiritual connection. The lower on this scale that the experiences are coded, the easier they are to handle.

When we start practising this, we understand that we begin to heal not despite the hurt but in spite of such pain. When Hellen Keller was asked how she developed the braille despite being blind, she said that she created the braille because of her blindness. Dr. Kelly Turner, Ph.D., a researcher, lecturer, and counsellor in the field of Integrative Oncology, mentioned an interesting thing in the documentary, "Heal" (Shomer, Morrisey, & Noonan, 2017). She said that if you perceive people are coming to help you and hold you and you perceive this outpouring of love, they are already helping you through your healing process. Because if you sense that love, as soon as you believe it, you have an oxytocin response. This oxytocin response is associated with increased natural killer cells, increased white cells, and even the immune response gets heightened.

### 3. Associated and dissociated memories

While practising NLP, when the practitioner assists the clients to see themselves independent of the traumatic memory by looking at it from a third-party's viewpoint, impactful changes can occur (Blake, 2002). The said client may have been engaging in critical talks about themselves, consequently kicking their immune system out of balance. This criticism begins to reshape hence bringing change to the perception of power and responsibility. For example, a client having just gotten out of a romantic relationship may be feeling guilty and blaming themselves for the failure of the relationship. By making them dissociate from the situation and perceive it through the eyes of an empathetic friend, they may begin to realize their efforts and understand that the shortcomings of the relationship did not have anything to do with their personality. This kind of a change in view can modify habitual emotional responses, thereby altering peptide patterns flowing through the body from unhealthy to health-enhancing. The practitioner helps the clients seek out memories of experiences wherein the client was happy, in good health, experiencing high levels of well-being. By assisting the clients in anchoring completely into such recollections ("see what you were seeing, hear what you were hearing, and be in the memory"), the practitioner encourages the peptide generation that can reestablish well-being associated with that time (Blake, 2002). This process will help lower the blood pressure, reduce the blood sugar levels, and bring the client to homeostasis in the example mentioned.

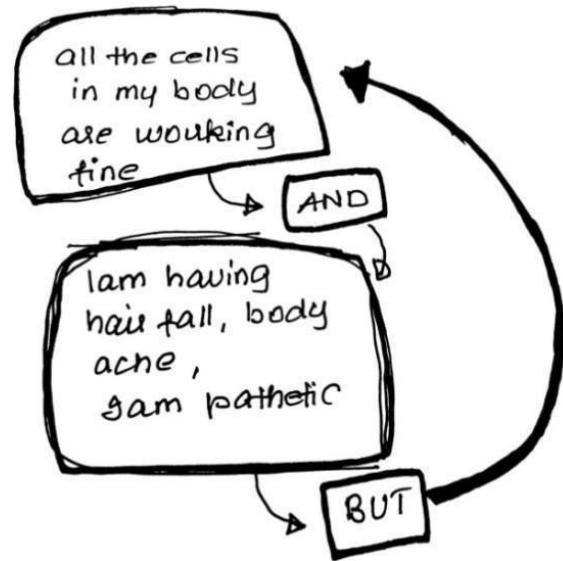


#### 4. Representational systems and submodalities

We experience the world around us through five sense modalities – VAKOG, as well as the internal dialogue (Auditory digital or Ad). Each representational system has a submodality. These submodalities can be incredibly useful in practice as clients can be asked to represent good health in some ways, such as with clear focus. They may be asked to enhance it with respect to size, add colours, turn it into a movie with sounds to represent well-being now and in the future. This process enables them to modify their whole being and march toward that projected state. When you let all five senses participate without competing beliefs, you learn to unwire and rewire habits. You need to unwire old emotions and their corresponding trigger response. This involves forgetting memories of emotions stored in the body in order to recondition the body to new behaviours. That is how you pull out energy from past trauma and invest it in the future. When you successfully do this, you can look at past trauma and say, “Ah! I have learnt from that, I don’t get the same old feelings, and I am beginning to change that behaviour.” Because what has happened has happened, what you had is gone, so the least you can do is take back the energy and emotions. This thought process will help you invest in the immune system better.

#### 5. Shifting the tonality of our internal dialogue

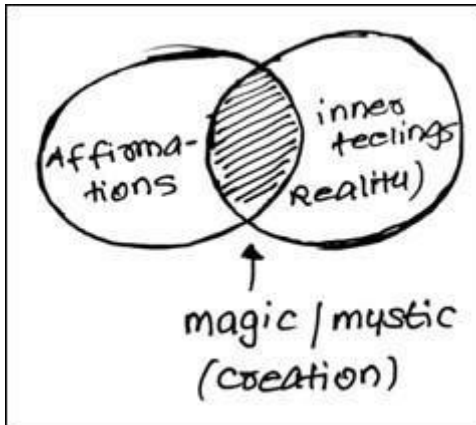
We often have a self-critical internal dialogue. The usually suggested way of counteracting these is with affirmations. However, affirmations mostly don’t work because we don’t believe them! We bring in the emotions of our past. On the other hand, we believe in negative self-talk because we have heard them so often. Instead, fascinating effects occur when we modify the tone of such self-talk. Try it now. Take a negative thought and say it out loud. Now say it softly, in a screechy tone, and make it fade in and out until it disappears, and maybe say it dramatically like- opera singers. You would notice that this exercise would render the words meaningless and perhaps even ridiculous but would put a smile on our faces.



Generally, if you ask yourself or your clients to notice the feelings after singing this jingle, it is common for a reply such as, “but every little cell in my body is not okay. My hair is falling, my head hurts, and I have a backache. So, every cell is not okay.” It is essential to understand that contradicting ideas can exist together. Yes, it is okay that all the cells are not working fine. For one to be true, the other need not be false.

When we hold two conflicting ideas together, we discover that there lies beauty in between. Keeping honesty with optimism, holding the brutal truth with the dream is nothing but bravery. When reality meets fantasy, creation, and execution take place. It is important to note that the jingle is not about the words as much as it is about the rhythm and the action. Here, you involve three modalities. Imagine if you can apply all five senses at the same time. That is how you create magic.

Affirmations are vital as they are words or language, which can create emotions, which in turn make hormones. Even though words can elicit feelings, the latter is more important to pay attention to as they are the language of the body, while words are the language of the thought.



### 6. Pessimism and Optimism

These two states of mind affect our health. Joseph O'Connor and McDermott have outlined the pessimism and optimism strategies in their book *NLP and Health* (O'Connor & Dermott, 1996). The pessimist takes a worthy and successful experience and views it as a rare accident for which the individual cannot take credit. When they encounter an unpleasant experience, they do the following:

- a) Generalize it ("this is what life is like"),
- b) Internalize it, thereby blaming themselves ("this happened to me because of who I am")
- c) Globalize it ("this is the kind of thing that always happens to me").

On the other hand, an optimist views bad experiences as one-offs or isolated events caused mostly by external factors and something from which they can learn. They believe that the universe around us is mostly a kind place; when they are successful, they see it as a result of their personality and thus, can take credit for it.

Both good and bad things happen to everyone around us, including ourselves. It is imperative to keep in mind that there are factors within our control, while some are not. Whether we choose to view our world as an optimist or a pessimist is within our control, which in turn has an impact on how we move through life, and this consequently affects our mood-peptides-immune system.

NLP is about structure. Although prayers are critical, it is also vital to act as though your prayers have been answered. It is the trick to know that your prayers have been answered. If you are willing to fire the right optimism, the right thought, then you elicit the right feeling. This feeling evokes the right hormones, which in turn releases a more

powerful army, the defence system of our body; the t-cells from the thymus and B cells from the bone marrow. This release of cells improves your stamina, core strength, inner strength, agility, and even flexibility. The future is not created yet, so one can work on making the future where they belong by focusing on every little cell – it is a conscious effort. Viktor Frankl, for example, did this for six years. He took the bowl of water with fish on top and said, "I am not going to give it my judgement, my condemnation, whereas I am going to provide it with my gratitude. He started viewing his world through this gratitude. It was a lie, but sometimes lies need to be told because they elicit a good feeling, like fairytales and Santa Claus.

### Techniques of NLP

NLP has developed several techniques based on the discoveries of psychoneuroimmunology. The Allergy Process developed by Robert Dilts, for example, uses disassociation and finding disputing examples to help change the response of the autonomic nervous system to allergy-triggering stimuli (Dilts, n.d.). This technique is found to recondition the immune response to the allergen.

Other NLP methods that influence the immune system include using visualization, submodalities, and affirmations for healing to ascertain a positive 'response expectancy.' Dr. David Hamilton, Ph.D., an organic chemist, gave an example in the documentary, "Heal," about visualization as a part of healing (Shomer, Morrisey, & Noonan, 2017). He mentioned that the underlying mechanism of the visualization process is that people take an internal picture of illness and convert it into an inner image of wellness. They do this over and over again. To quote the examples given by Dr. David Hamilton: imagine a person getting chemotherapy. They imagine the chemo drugs as little piranha fish nibbling at the tumour. In their mind's eye, what they see is their tumour getting smaller and smaller until it is gone. Similarly, people in radiotherapy imagine the radiation like bolts of lightning going at the tumour, and the tumour getting smaller and smaller until it is vanquished.

NLP techniques such as Future Pacing, the New Behavior Generator, the Submodality Swish, Logical Level Alignment, and the Belief Installation Procedure help to increase outcome expectancy and condition appropriate immune system reactions (Dilts, Halbom, & Smith, 1990). These techniques function by aiding people to build a more prosperous, multi-sensory internal map of future actions and preferred states.

Other NLP techniques help people to alter restrictive beliefs that suppress the immune system by creating stressful states or by producing “negative response expectancy” (similar to the rats that drank the red-coloured, sweet-flavoured water). Techniques such as Conflict Integration, Reimprinting, the Belief Change Cycle, Belief Outframing and Sleight of Mouth are all examples of processes which can influence immune system functioning by altering or updating beliefs (Dilts, Hlbom, & Smith, 1990).

### Examples of Self-Healing

#### 1. Milton H. Erickson



*“I am very confident. I look confident. I act confident. I speak in a confident way..”*

At the age of 17, Milton Erickson contracted polio and became severely paralyzed. Doctors were expecting the worst, and his mother was informed that he would not wake up the next morning. To everybody’s surprise and what was deemed a miracle, Erickson made it the next day before slipping into a coma for three days.

Over time, however, his body began to heal. He regained the ability to speak and move his arms. He also developed the ability to walk with a cane (Hetelekides, 2018). He overcame this overwhelming physical adversity while lying in bed by focusing on what he called “body memories.”

Seemingly, by directing his conscious attention on these pseudo-subconscious memories of motor movements, Dr. Erickson was able to almost entirely rebuild deliberate control of body parts (Hetelekides, 2018). Whether or not he knew why the cognitive act of concentrating on these “body memories” was helping him recover, it is

importantly immaterial to his recuperation. However, for epistemological purposes, this information would help understand the underlying mechanisms at work in such a process.

We could relate this to Dr. Bruce Lipton’s work. Presently, in our bodies is a collection of cells, including stem cells and embryonic cells, typically intended for the replacement and restoration of affected tissues and organs (Lipton, 2005). Nonetheless, their functioning and existence are epigenetically controlled. In other words, these cells are deeply impacted by the way we perceive our surroundings. Therefore, our views on ageing can either hinder or augment stem cell activity, leading to biological renewal or deterioration.

As opposed to Darwin’s theory which emphasized competition and struggle, cooperation and community are the underpinnings of not just evolution but also cell science. A Community can be defined as a collection of individuals working toward a common goal. Our bodies symbolize the cumulative effort of trillions of cells.

#### 2. Joe Dispenza

Joe Dispenza met with an accident during a triathlon event, experiencing severe damage to his spinal vertebrae along with a host of neurological symptoms, including severe pain, numbness, loss of sensation in his legs, and the like (Dispenza, 2014). His orthopedic surgeon conveyed to him that his only option was a major surgery, which involved transplantation of the Harrington rod. The surgeon also told him that with the surgery, he would have a slight chance to walk again, will experience some disability, and will have chronic pain for the rest of his life. Without the surgery, however, he would remain paralyzed forever. Dr. Dispenza decided to go against the medical recommendation.

He believed that there’s an intelligence, an invisible consciousness, within each of us that’s the giver of life. At the time, he reasoned that if this intelligence existed and if it willfully, mindfully, and lovingly had such extraordinary abilities, maybe he could take his attention off his external environment and instead go within and connect with his internal environment. He decided on two things. First, every day he would put all his conscious attention on this intelligence within him and give it a plan with detailed orders. Then he would surrender his healing to this intelligence which he perceived has unlimited power. Second, he would not let any unpleasant thought slip by his awareness.

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Nine and a half weeks past the accident, he got up and walked back into his life and all without any cast or surgery. He fully recovered and even started seeing patients again at ten weeks. He trained and lifted weights again while continuing his rehabilitation at twelve weeks. He discovered that he was taken the placebo (Dispenza, 2014).

### Conclusion

When we look at our surroundings as one that provides safety and support, the regenerative cells in our bodies concentrate on growth. Cells require a boost to uphold the body's well-being. This mechanism is how the placebo effect works!

However, when we experience stress, our cells adopt a protective stance. In this case, the energy resources required for sustenance get channeled to these protective mechanisms. This diversion results in growth processes getting restricted or suspended, as the system is stressed.

The mind is the central source of stress signals. It can be likened to a good driver. Adequate driving skills coupled with the ability to handle behaviours and regulate emotions lead to longevity, happiness, and productivity. On the other hand, ineffective management of actions and emotions, like a terrible driver, stresses our body (in this case, the vehicle itself), hindering its functioning and causing it to collapse.

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