

Neurotransmitters and Trigrams

(Dan Van den Berghe, Feb 2025)

NEUROTRANSMITTERS	
ADRENALINE fight or flight produced in stressful situations. Increases heart rate and blood flow, leading to physical boost and heightened awareness.	GABA calming Calms firing nerves in the central nervous system. High levels improve focus, low levels cause anxiety. Also contributes to motor control and vision.
NORADRENALINE concentration affects attention and responding actions in the brain. Contracts blood vessels, increasing blood flow.	ACETYLCHOLINE learning Involved in thought, learning and memory. Activates muscle action in the body. Also associated with attention and awakening.
DOPAMINE pleasure feelings of pleasure, also addiction, movement and motivation. People repeat behaviors that lead to dopamine release.	GLUTAMATE memory Most common neurotransmitter. Involved in learning and memory, regulates development and creation of nerve contacts.
SEROTONIN mood contributes to well-being and happiness. Helps sleep cycle and digestive system regulation. Affected by exercise and light exposure.	ENDORPHINS euphoria Released during exercise, excitement and sex, producing well-being and euphoria, reducing pain.

These are the eight main neurotransmitters, chemicals that are responsible for communications in the brain and the nervous system. It are not hormones, but chemical messengers that are needed in the nervous system. Is there some meaningful connection with the 8 trigrams from I Ching? At first glance the colors in this table seem to be connected to whether a given neurotransmitter is more stimulating/hot (red and orange colors) or more calming/cool (green and blue colors). There are also some keywords and a brief description. But we can't be too quick to jump to conclusions as to how those eight chemicals might relate to the trigrams. So, I dug a bit deeper in what each neurotransmitter does and came up with a fitting match. Here goes.

Let's start with three closely related neurotransmitters that belong to the same class, called "catecholamines". This are Dopamine, Adrenaline and Noradrenaline. They appear together in the above table and are red/orange. They are directly connected to our "fight or flight" response, so they make us concentrated and ready to act or react to sources of danger or stress.

Adrenaline is known to get our blood pump very fast and get the body ready to fight or run away within seconds, especially when acute danger is faced. This is represented by the trigram Zhen/Thunder, which stands for very fast action and sudden shocks or knocks. When adrenaline levels are too high the person may suffer anxiety, high blood pressure and headaches. With too low adrenaline levels the person will have a weak ability to react to stressful situations.

Noradrenaline stands for a more steady state of alert concentration and readiness to act where needed. It is the main neurotransmitter of the sympathetic nervous system, which means it keeps all our organs ready and working automatically for us. It regulates all kinds of autonomic functions. This steady state of active concentration, regulating the entire body, is the trigram Qian/Heaven. With overly high noradrenaline levels a person becomes

hyperactive, panicky and may get an irregular heartbeat. With low levels there is lethargy, lack of concentration, ADHD and depression.

Dopamine has to do with reward and motivation. Also with mood. If our levels of dopamine are too depleted we will feel down and have no zest for life. As such there is also a connection with coffee, drugs, alcohol, and even our phone, because they can give us a quick dopamine boost. But that effect is typically short-lived. Dopamine is related to trigram Li/Fire. Fire clings, and this is why we can become addicted. Fire also needs to move in search of new fuel, so it can become very restless. In the same way we keep looking for new motivation and rewarding experiences in life. This is all dopamine related. Overly high dopamine levels can cause insomnia, psychosis, delusions, hyperactivity, over-agitation, and ADHD. With low levels of dopamine come depression, lack of motivation, lethargy, no joy in life, anhedonia, increased risk of addiction, memory issues, social withdrawal, and even Parkinson's disease.

Note that those three connect with the numbers 3 (Zhen/Thunder – adrenaline), 6 (Qian/Heaven – noradrenaline) and 9 (Li/Fire – dopamine). A step change of 3.

As opposed to them, we have two calming neurotransmitters that are similar to each other in their main functioning. They bring the nervous system back to balance: GABA and Serotonin.

GABA is the main inhibitory neurotransmitter. It works to put a stop to over-activity, anxiety, fear, over-excitability... and brings relaxation, meditation and eventually sleep. It acts as a kind of brake when neural activity goes out of control. So it sets limitations. This is the trigram Gen/Mountain, which stands for calm and silence. A person with low GABA levels easily gets over-excited, anxious, irritable, can not sit still, or may get panic attacks. It can also cause insomnia, phobias, seizures, and hypervigilance. With overly high GABA levels a person can suffer drowsiness, muscle weakness, and respiratory problems.

Serotonin is a bit more varied and works in different ways to restore emotional balance, mood, helps sleep, reduces stress. It also has to do with appetite/eating. This one is related to the trigram Kun/Earth. A person with low serotonin gets a very unstable mood, loss of appetite, increased pain sensitivity, struggles with focus and memory, and can become more aggressive and impulsive. With overly high serotonin levels a person can get rapid heart rate, confusion, fluctuations in blood pressure, nausea, diarrhea, dizziness, disorientation, and lightheadedness.

GABA and serotonin are complimentary in keeping our nervous system calm and in balance. Interestingly, both GABA and serotonin are both involved in the "gut-brain" axis too, via the vagus nerve. Keeping your gut microbiota healthy is an effective way to avoid problems with those two calming neurotransmitters. And it will keep your intuition (gut feelings) strong and working well.

Note that both are traditionally related to the element Earth, and to the numbers 8 (Zhen/Mountain – GABA) and 2 (Kun/Earth – Serotonin). Here we have a step change of 6 (2 x 3).

We have three more neurotransmitters left: Acetylcholine and Glutamate (both blue in the table above) and finally Endorphins (red). What do we make of those?

Let's start with Glutamate, which is also considered excitatory. It is the most important neurotransmitter in the central nervous system, so it is crucial for all our thinking processes in the brain and directs all the information our senses receive. It sends electrical signals flowing through the spine and into all the nerves. It handles our motor output by sending signals to the muscles. So, this is very flowing and active, and acts to make new nerve connection pathways too. Glutamate is the trigram Kan/Water.

Then we have Acetylcholine, which is very versatile and more subtle in most of its functions. It's the main transmitter of the parasympathetic nervous system, "rest and digest". It can be stimulating, but also calming, depending on the situation. It covers a range of emotions. It's involved in memory and learning, and also in muscle contraction. Subtle, adaptive, and very flexible. This is the trigram Xun/Wind(Wood).

Glutamate and Acetylcholine work hand in hand to facilitate adaptation, learning and memory. Low levels of glutamate and acetylcholine cause cognitive impairment and memory loss, or even Alzheimer's disease. Also fatigue and mood changes. Too high levels lead to anxiety and insomnia, muscle tensions and cramps, cognitive overload, weak emotional regulation, stress and burnout.

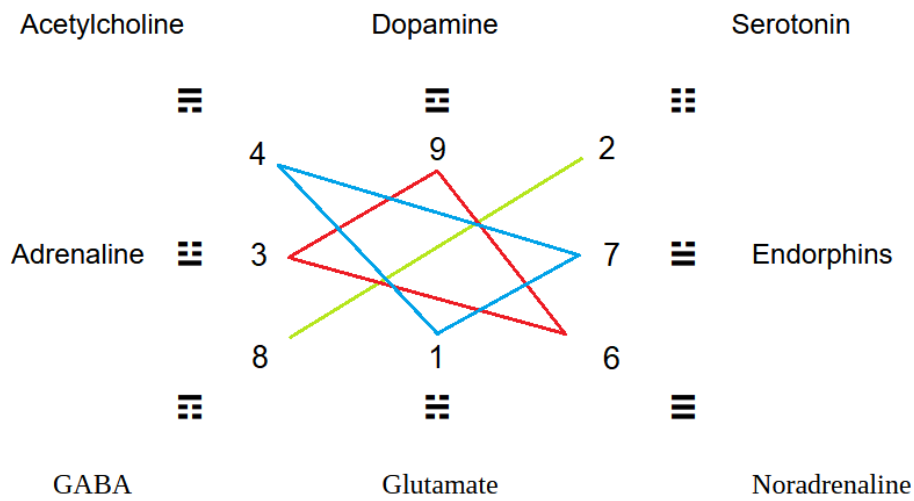
This brings us to the last one to classify, Endorphins. Endorphins have to do with happiness, pain relief, social bonding, pleasurable activities, laughter, and even euphoria. Physical activities (including sex) are a known way to release more endorphins in the body. Endorphins reduce stress and pains in the body. This is the trigram Dui/Lake. It is also known that endorphins help to reduce glutamate levels if they are too high. This is like Lake absorbing the excess waters of a flooding river.

Overly low levels of endorphins can cause chronic pain, depression, fatigue, decreased pleasure, increased cravings and addiction, social withdrawal and isolation, weak ability to cope with stresses, and weakened immunity. High levels of endorphins cause euphoria and elation (which can impair judgment), decreased pain perception, increased energy and desire to engage in high-risk activities, substance abuse, reckless driving, and also decreased empathy and compassion.

Note that here we have the numbers 1 (Kan/Water – Glutamate), 4 (Xun/Wind – Acetylcholine) and 7 (Dui/Lake – Endorphins). Again we have a step change of 3, just like with the first three neurotransmitters we covered.

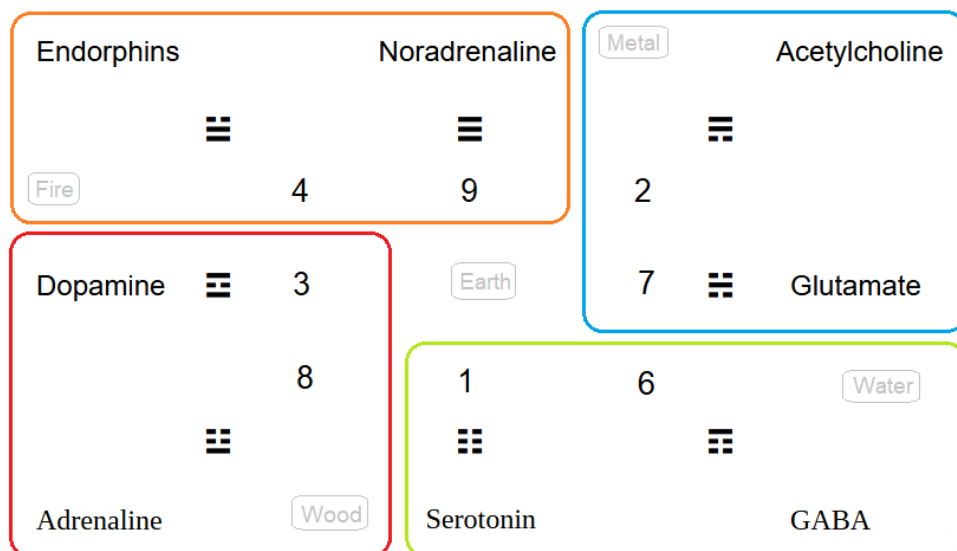
Now, let's have a look at how those transmitters appear in the well known Earlier and Later Heaven arrangements of the 8 trigrams.

Later Heaven - King Wen arrangement (Lo Shu numbers):



The first three we covered, the catecholamines related to active “fight or flight” responses to life’s stressors, are in position 3, 6 and 9, connected with a red triangle in this diagram. The two main calming neurotransmitters are on the Earth axis, 2 and 8, shown by a green line. And the remaining three, related to thinking/learning and play/pleasure, are in position 1, 4 and 7, connected by the blue triangle in this image. A beautiful symmetric pattern.

Earlier Heaven - Fu Xi arrangement (Hetu map numbers):



In the Earlier Heaven arrangement, we see something totally different. Starting in the bottom left side we have Adrenaline and Dopamine, #8 and #3 in the Hetu map, and connected with the Wood phase. Then follow Endorphins and Noradrenaline, #4 and 9#,

considered the Fire phase. It continues with Acetylcholine and Glutamate, #2 and #7, for the Metal phase. And we end with GABA and Serotonin, #6 and #1, and considered the Water phase. Note how we reused the colors from the table at the start of this article.

It is when we look at this Earlier Heaven pattern that we can start understanding the different roles of each of the neurotransmitters as we have described and categorized them so far. And in reverse, knowing more about the neurotransmitters can help us understand the Earlier Heaven dynamics a bit better.

Each of the four phases in our diagram has two members (always one male and one female trigram). Theoretically Earth is in the middle, but has no trigram assigned to it.

So, we start the day (or year) on the East side (Wood phase), where we have Adrenaline first and Dopamine next. Both get things moving, but each in their own way. Adrenaline shocks us into action (yang enters from below) early in the day, and Dopamine makes things move through “attr-action”. The trigram Zhen/Thunder shocks and shakes up, it’s noisy and triggering. The trigram Li/Fire is beautiful and attractive, it shines and is seducing. It’s the feminine way of creating movement (trigram Li/Fire is the beautiful middle daughter), it pulls, and that becomes the topic of motivation. Zhen/Thunder trigram is activation/start/push, and Li/Fire trigram is attraction/motivation/pull.

The second phase is Fire (noon, summer). Endorphins are linked with joy, euphoria, social bonding. It is the trigram Dui/Lake. Note that movement, play and pleasurable activity is the main way of creating more endorphins in the body. That’s why it follows right after the Wood stage. Noradrenaline on the other hand is more serious. It gives alert concentration, powerful awareness and clarity, and it is a constant readiness to address what happens next. This is trigram Qian/Heaven. It peaks around the middle of the day (or year), when we are fully immersed in our daytime activities.

The next phase is Metal (evening, autumn), when the second half of the cycle starts. First there is Xun/Wind, which is Acetylcholine. And second comes Kan/Water, which is Glutamate. As explained before, those two are strongly correlated with learning and memory. As a day(year) starts to wind down we “digest” everything that has happened. In the first step Xun/Wind, we feel and ponder and our thoughts still go in all directions, very variable and fuzzy, just like the wind. Eventually this learning and thinking will get condensed into new knowledge, Kan/Water. Xun/Wind is subtle feelings and unstructured thinking in all directions. And Kan/Water trigram is straightforward thinking leading to new understanding and new brain or nerve connections (which is what glutamate handles).

The fourth and final phase in this cycle is Water (night, winter). First we have trigram Gen/Mountain, which is GABA. It brings the thinking to rest, and ends the day’s activities. Maybe we meditate a bit, and then we can fall asleep. Then follows trigram Kun/Earth, Serotonin. It continues the rest/sleep, brings everything in balance, removes stress,

repairs the body, and gets it ready for another day (year). Eventually we will wake up, and that will start the next cycle.

Yes, it can be confusing to read that Kun/Earth belongs to the Water phase, or that Li/Fire belongs to the Wood phase in this sequence. Because Later Heaven is the more commonly studied sequence. So, why do we focus on Earlier Heaven more?

The Later Heaven sequence is more manifested, it's about the outer appearance of things, outcomes and results. If we want to use I Ching for predicting outer world events only, then Later Heaven sequence is our main tool.

The Earlier Heaven sequence is more primordial, it is about first causes and origins. It's first and foremost about our own inner processes, and what we do or achieve in the outer world is secondary to that purpose. Those inner processes is what the neurotransmitters play their role in. So, if we want to cultivate our inner understanding, develop our soul and our inner mind eye, then we study and work with Earlier Heaven sequence.

To recap this sequence in it's most brief format, leaving out the neurotransmitters that facilitate all this:

* We start the cycle with a first sudden spark (trigram Zhen/Thunder) and that creates movement, and the movement will continue if there is motivation (trigram Li/Fire). This is about action and attraction, push and pull.

* That movement results in an abundance of forms and activities and social connection (trigram Dui/Lake) and that also cultivates a very alert, awake, involved steady state of mind (trigram Qian/Heaven). This is about playfulness and mindfulness.

* As the cycle moves over the halfway point we start processing inwardly what we experience(d). First in terms of subtle feelings and thoughts that come up (trigram Xun/Wind), and next also as more logical thinking which can condense our experiences into new memorized wisdom (trigram Kan/Water). This is feeling and thinking, contributing to learning and memory.

* Lastly, we stop our physical and mental activities (trigram Gen/Mountain), and relax our mind and body to let it recover (trigram Kun/Earth). This is stopping and resting/sleeping, and it wraps up the cycle before a new one can start.

Note that in the first phase Wood (Zhen/Thunder and Li/Fire trigrams), we start with outgoing activity and movement with motivation. In the third phase Metal (Xun/Wind and Kan/Water trigrams), the focus turns inward and it becomes more about "taking in" the experiences and digesting them into new learning and understanding. Wood expands, breaks old boundaries, moves outward and gets into new experiences; and Metal contracts, confines, turns back inward and generates new inner wisdom. Maximum active awareness and creativity, is reached at the end of the second phase Fire in the Qian/Heaven trigram. Maximum relaxation, rest, sleep, is reached at the end of the fourth phase, Water, in the Kun/Earth trigram.

The inward phase (Metal and Water) prepares for the next outward phase (Wood and Fire), and thus affects it in many ways, also in terms of what you will manifest. And the labors and fruits of the outward phase (Wood and Fire), brings in the experiences and thoughts and feelings that will get processed in the next inward phase (Metal and Water). It goes round and round.

If we understand and live those four phases fully, then we are using the trigrams for inner cultivation. Nobody will see you do any “predictions”, it is more a kind of inner yoga or meditation, a life lived with purpose and intention. And the neurotransmitters will do what they are meant to do along that path.

On a most simple level you can consciously arrange your day more closely in line with the Earlier Heaven sequence. Below is a simple blueprint example, but you can vary the times depending on whether you are an early riser or not. And you can also vary the length of the stages to some extent. The main thing is to keep the sequence intact and use each stage to the fullest:

4am – 10am (Wood phase)

* 4am – 7am: trigram Zhen/Thunder, adrenaline. Wake up and get moving. This the most energetic time to start any activities. You are still fully rested, so you can move quick and far in this time period. This is also a cooler part of the day if you are living in a warmer climate.

* 7am – 10am: trigram Li/Fire, dopamine. The sun has risen, your blood is flowing, your eyes are open, your body is fully alive, and you feel motivated to carry on with what you are doing.

10am – 4pm (Fire phase)

* 10am – 1pm: trigram Dui/Lake, endorphins. You feel joy about what you do and share it with others you meet, for example when you take your abundant products to the local market. You exchange with others and are open to make new connections. Joy is contagious, so the more happy/euphoric you are the more charismatic you can be here.

* 1pm – 4pm: trigram Qian/Heaven, noradrenaline. The first half of the day is coming to an end at this point. You can see the creative results of all your activities since the early morning. Your heart is filled with joy from the exchanges you had with others. Your senses are fully alive and alert. And your spirit is high.

4pm – 10pm (Metal phase)

* 4pm – 7pm: trigram Xun/Wind, acetylcholine. A “rest and digest” stage has come. You start to “wind” down most physical activities, but some small things can still be done. And probably you have your last meal of the day. You also ponder/digest all the events, feelings, meetings and thoughts of the day, as you gradually process what has happened.

* 7pm – 10pm: trigram Kan/Water, glutamate. Darkness starts to fall and your thinking becomes more practical in terms of what is needed to be safe for the night, like locking the door. There can also be some planning for the next day, as well as some writing and other mental tasks that complete your day. And how about a shower (Kan)? You just want to cross everything off your mind to be ready for a good refreshing sleep. If ideas/thoughts keep ruminating in your head (too much glutamate), then sleep will be difficult.

10pm – 4am (Water phase)

* 10pm – 1am: trigram Gen/Mountain, GABA. Here you stop. You can settle any lingering thoughts by meditating a bit if there is still too much going on in your mind. Bodily processes will slow down as you do this, and sleep will come during this time.

* 1am – 4am: trigram Kun/Earth, serotonin. Your body rests and heals, your mind sleeps, you come back to silent balance and recover your energy.

Depending on your profession it may be more or less difficult to organize your day in line with this Earlier Heaven sequence. It's easier to do if you have a small farmer's life, and a lot more difficult if you are a bus driver or factory worker doing night shifts. You can only make the best of it.

We can also use this information more directly for health related divination questions, especially for mental health, but only if that's the clear question we have in mind. It can not be the purpose to start interpreting every question in terms of neurotransmitters.

And of course, most neurotransmitters are made by the body as needed. Eating healthy, moving enough, socializing, meditating and sleeping at regular times will all contribute to a well functioning nervous system with balanced levels of all the neurotransmitters.

But if there are imbalances, then a well done divination about it could help us to find a solution. The answer you get can then be interpreted in terms of what you need to spend more or less time on. For example, if you are still writing or watching movies at a time you should be sleeping, then a divination may point that out.

It's also possible to fix some imbalances with food or herbs. Here is a list of herbs and food supplements that can be considered in this context:

* L-DOPA (Mucuna Pruriens): helps with low dopamine levels, which indirectly also supports adrenaline and noradrenaline.

* St. John's Wort: can increase dopamine levels.

* Ginseng: can improve adrenaline levels.

* Vitamin C, B5, Iron and Zinc: necessary for adrenaline synthesis.

* Rhodiola Rosea: balances adrenaline and noradrenaline, and can indirectly help to release endorphins.

* GABA: exists as a food supplement, which some people use for stress relief, relaxation and sleep.

* Valerian, passionflower, kava, lavender, chamomile: can increase GABA levels.

* 5-HTP: supports the production of serotonin.

* Saffron: can increase serotonin levels.

* Ashwagandha: stress relief, which can support endorphin release.

* Magnesium and antioxidants: protects against too much glutamate.

* Bacopa Monnieri (Brahmi): herb used in ayurveda. Enhances acetylcholine activity.

* Huperzine A: increases levels of acetylcholine.

* NAC: can support the synthesis of glutamate.

- * Vitamin B6: keeps a healthy balance between glutamate and GABA.
- * Gingko Biloba: increases glutamate release.

Important: don't use those herbs or supplements without consulting your personal doctor. Always verify and consult with a specialist. This article is shared for study purposes only.

A few examples of how commonly used products affect neurotransmitters:

- * Coffee: stimulates dopamine and noradrenaline and reduces GABA.
- * Chocolate (cacao): stimulates serotonin, dopamine and endorphins.
- * Alcohol: increases GABA, dopamine, serotonin and endorphins; decreases glutamate and noradrenaline.
- * Kefir: one of the ways to improve probiotics in the gut. This helps increase the production of serotonin and GABA, and also of dopamine.

It's not difficult to understand why coffee can make and keep you going. And why alcohol can make you more open socially, but also make you more sleepy or slow to react.

That's it for this article. I hope it inspires some people to focus a bit more on their inner processes, and study the Earlier Heaven sequence, which I prefer to think of as the "Inner Sequence" (as opposed to the "Outer Sequence", aka Later Heaven).

And in that context I want to conclude with this traditional story (source: <https://www.awakin.org/v2/read/view.php?tid=1045>)

"A famous Sufi mystic, Rabiya, was searching for something on the street outside her small hut. The sun was setting and darkness was descending, as few people gathered around her. "What have you lost? What are you searching for? Perhaps we can help," they said to Rabiya. Rabiya said, "I have lost my needle."

One amongst the people said, "Well, the sun is setting now and it will be very difficult to find the needle. Where has it fallen? That'll help us narrow down the area on this big road. If we know the exact place, it will be easier to find it."

Rabiya told them, "It is better not to ask me that question -- because, actually, it has not fallen on the road at all. It has fallen inside my house."

Everyone started giggling as if she was joking. Then a skeptic says out loud, "We always knew that you were a little insane! If the needle has fallen inside the house, then why are you searching for it on the road?"

"For a very simple reason: inside the house there is no light and on the outside a little light is still there," Rabiya replied.

The people laughed and started dispersing. Rabiya called them back and said, "Listen! That's exactly what you are doing: I was just following your example. You go on seeking bliss in the outside world without asking the most fundamental question: where exactly have I lost it?"

After a pause, she continues, "You have lost it inside, and yet you are looking for it on the outside for the very same reason -- your senses are outward bound, your ears hear sounds on the outside, your hands touch things on the outside. That's the reason why you are searching outside. For a very long time, I was also just searching on the outside. But the day I searched inwards, I was surprised. That is where I lost it and that is the only place it can be found."

(note: for more details about the mentioned trigram arrangements you can check out this article: https://baharna.com/iching/articles/river_trigrams.html)

(note 2: [Huberman lab](#) is a very good place if you want to learn more about the neurotransmitters. Dopamine depletion and addiction to phone (= quick dopamine boost) has become a very important topic, among many others: <https://fb.watch/xT7FyDVuth/?mibextid=rS40aB7S9Ucbxw6v>)