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Understanding THC and Other Mind-Altering Substances

- In order to understand THC, CBD and other Phytocannabinoids let's examine the entire idea of consciousness and substances that alter consciousness, as well as the chemical messaging system of the body



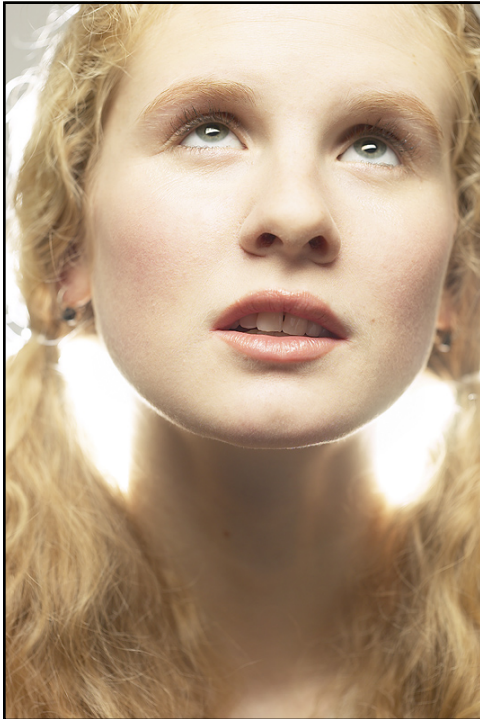
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Who Are You?

- "Who are you?" said the Caterpillar.
- Alice replied, rather shyly, "I - I hardly know, sir, just at present - at least I know who I was when I got up this morning, but I think I must have been changed several times since then."



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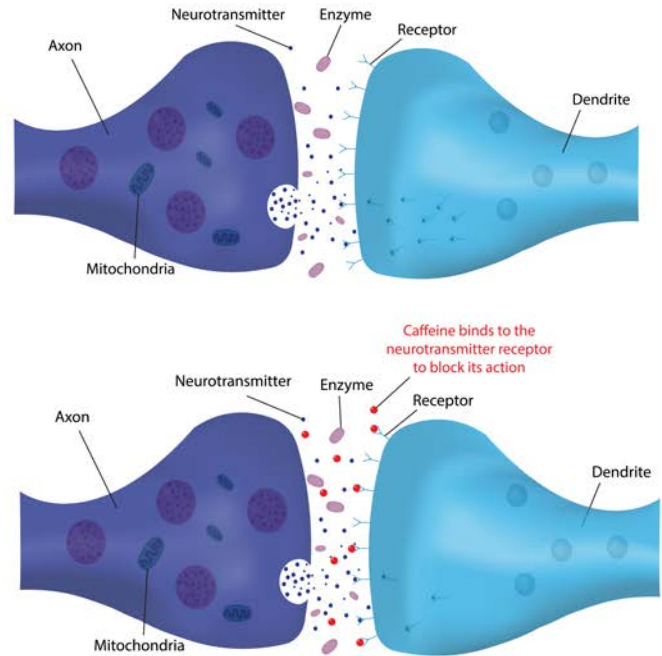
Who's Listening?

- Everyone has a steady dialog of words (thoughts) flowing through the brain
- Are you the dialog flowing through your brain OR are you something that is listening to the dialog?
- Who are you?
- Modern science (and therefore medicine) views that consciousness (thoughts and feels) arise from biochemical and electrical processes in the mind and body
- Therefore, altering the chemical messages will fix the problems

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Caffeine

- Binds to adenosine receptors in the brain which tell you that you are tired
- Doesn't give you energy, just blocks the signal you are tired
- This causes the body to use the stress system (cortisol and epinephrine) to keep you active
- However, the body learns to adapt the caffeine by producing more adenosine receptors to get the message through that you are tired



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The Brain and the Mind

- Modern science promotes the idea that thoughts and emotions are the result of brain activity
- They claim there is no mind, soul or spirit, only the body
- This mechanistic model is challenged by research that shows changing one's can thoughts can alter both brain structure and brain function
- If mind arises from the brain, how is this possible



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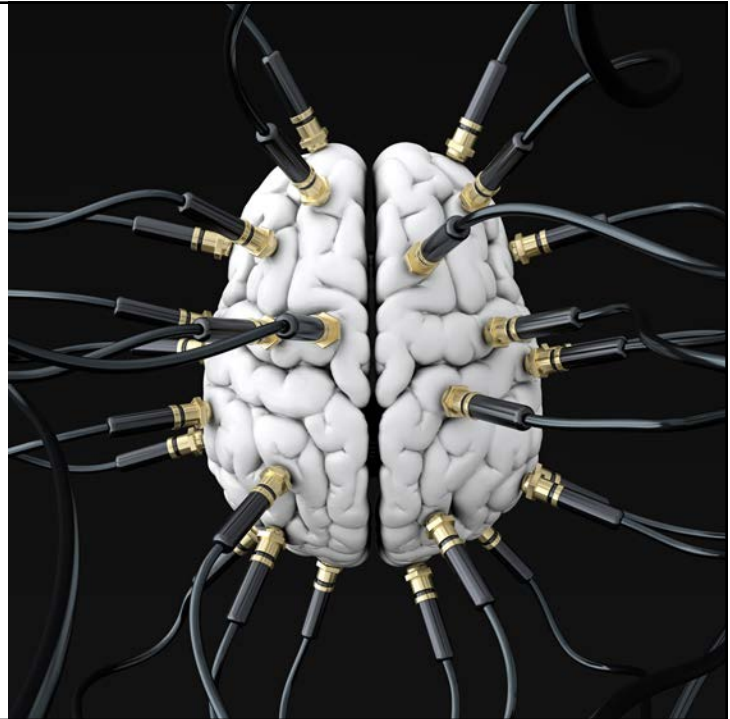
Flaws in the Mechanistic Model of Mind and Brain

- Changing one's thoughts alters brain chemistry and affects brain structure
- After completely mapping the human brain, scientists cannot discover the area of the brain that makes decisions
- They also cannot discover an area of the brain that integrates perceptions

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Computer versus Programmer

- It is more likely that the brain is a tool used by the mind rather than being the source of mind
- A helpful analogy would be to think of your brain as a computer and your mind as the computer designer and programmer
- As you make decisions to think certain thoughts and perform certain actions, your brain reshapes and reprograms itself to better execute your instructions



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Changing Mental and Emotional Programs

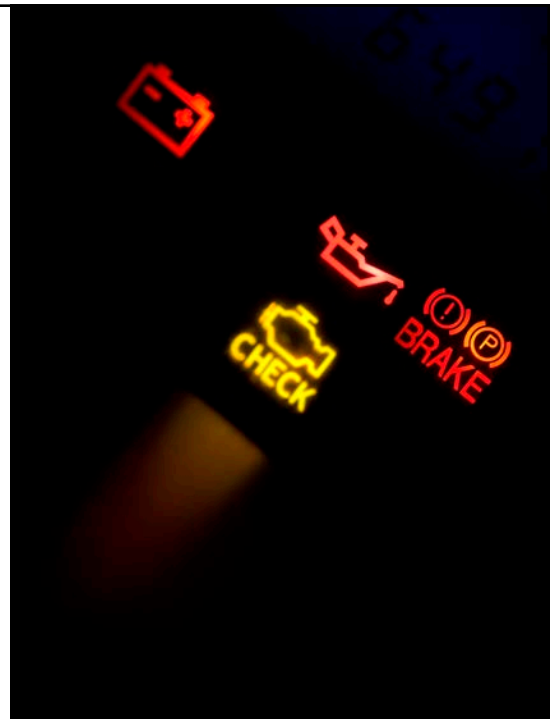
- There is evidence that chronic anxiety, depression and other negative mental and emotional issues may be programs of fear or defeat we have created that are running on autopilot
- By consciously changing these patterns we can create new neural circuitry that replaces them with more positive programs
- To learn more about this read *You Are Not Your Brain* by Jeffery M. Schwartz, MD.



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Body Talk

- The body gives us feedback about what we're doing and what it needs
- Feedback comes in the form of feelings and sensations
 - Pain and Pleasure
 - Hunger and Thirst
 - Fatigue and Restlessness
 - Anxiety and Irritability
 - Discomfort and Wellbeing
- Interfering with chemical messengers without fixing the problem is akin to interfering with warning indicator lights on your automobile



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Opium (Morphine)



- Opium poppy has been used to relieve pain for about 3,000 years
- In the early 1800s Friedrich Sertürner isolated the alkaloid morphine from poppy, which had a much stronger analgesic and sleep-inducing effect than the whole poppy plant
- In the 1970s, Dr. Candice Perk, working with the neuroscientist Solomon H. Snyder, discovered the opiate receptor in the brain

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- Candice Perk is reported to have said, “God presumably did not put an opiate receptor in our brains so that we could eventually discover how to get high with opium”
- In fact, the real purpose of “opiod receptors” is to act as receptor sites for our body’s own natural or endogenous opioids, dynorphins, enkephalins, endorphins, endomorphins and nociceptin

Opiates and Endorphins



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Endorphins

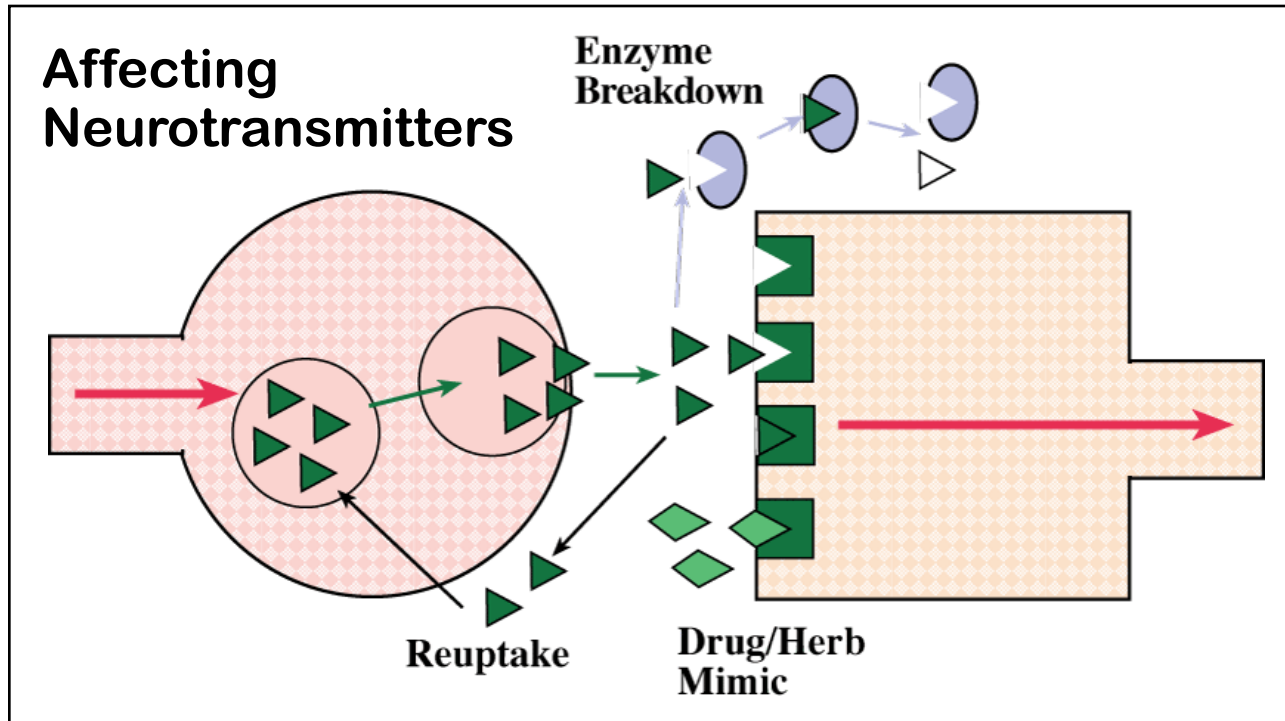
- Endorphins ("endogenous morphine")
- Produced by the pituitary gland and hypothalamus
- Released during exercise, excitement, pain, consumption of spicy foods, love and orgasm
- Reduce pain and increase feelings of wellbeing
- Massage and meditation increase release of endorphins
- Chocolate also increases endorphins

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Ways Drugs and Herbs Can Affect Messenger Chemicals

- They can stimulate messenger chemicals to be released.
- They can inhibit messenger chemical release
- They can inhibit production of messenger chemical by inhibiting the enzymes that produce them.
- They can inhibit the enzymes that break down messenger chemical causing greater reuptake
- They can block messenger chemical reuptake
- They can bind to the messenger chemical receptor, either stimulating it (agonist) or inhibiting it (antagonist)

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Serotonin Functions

- Regulates carbohydrate cravings, digestion
- Regulates sleep cycle
- Affects pain tolerance
- Promotes assertive behavior and the drive for self-esteem
- Low levels are associated with depression, bipolar disorders, anxiety, cravings for carbohydrates, insomnia and fatigue
- May also be involved with vomiting, sexuality, memory and learning, body temperature, cardiovascular function and endocrine balance

Serotonin projections

Raphe Projects throughout the cortex

The diagram shows a sagittal view of the brain. The Raphe Nuclei are located in the brainstem. Arrows indicate the projections of serotonin from the Raphe Nuclei throughout the cortex and spinal cord.

Raphe Nuclei

cortex

spinal cord

Image source: http://brainavm.oci.utoronto.ca/staff/Tymianski/NEUROTRANSMITTER_SYSTEMS.htm

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Serotonin Neurons

High Activity

- Help us have willpower
- Help us connect with our body and reality
- Help us to delay gratification and to create and act on well-formed plans
- Excessively high serotonin can lead to aggressive, violent and hostile behavior

Low Activity

- Difficulty finishing things
- Feeling depressed and discouraged
- Getting annoyed easily
- Being unable to control your impulses
- Ungrounded thought processes

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Serotonin and LSD

- LSD binds to a variety of serotonin receptors slowing their rate of firing
- This induces hallucinations that last well beyond the time LSD stops interfering with serotonin
- Remember that serotonin is also inhibited when we are dreaming
- Ergot fungus and psilocybin from certain mushrooms has a similar effect



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- **SSRIs—Selective Serotonin Reuptake Inhibitors (inhibit serotonin reuptake, may also increase GABA responses)**
 - Fluoxetine (Prozac), Paroxetine (Paxil, Seroxat), Sertraline (Zoloft, Lustral), Citalopram (Celexa), Escitalopram (Lexapro, Cipralex), Fluvoxamine (Luvox)
- **SMS—Serotonin Modulators and Stimulators**
 - Vilazodone (Viibryd), Vortioxetine (Brintellix)
- **SARIs—Serotonin Antagonists and Reuptake Inhibitors (block serotonin receptors)**
 - Etoperidone (Axiomin, Etonin) and Trazodone (Desyrel)

Serotonin Drugs



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Serotonin Issues

Elevated Serotonin Issues

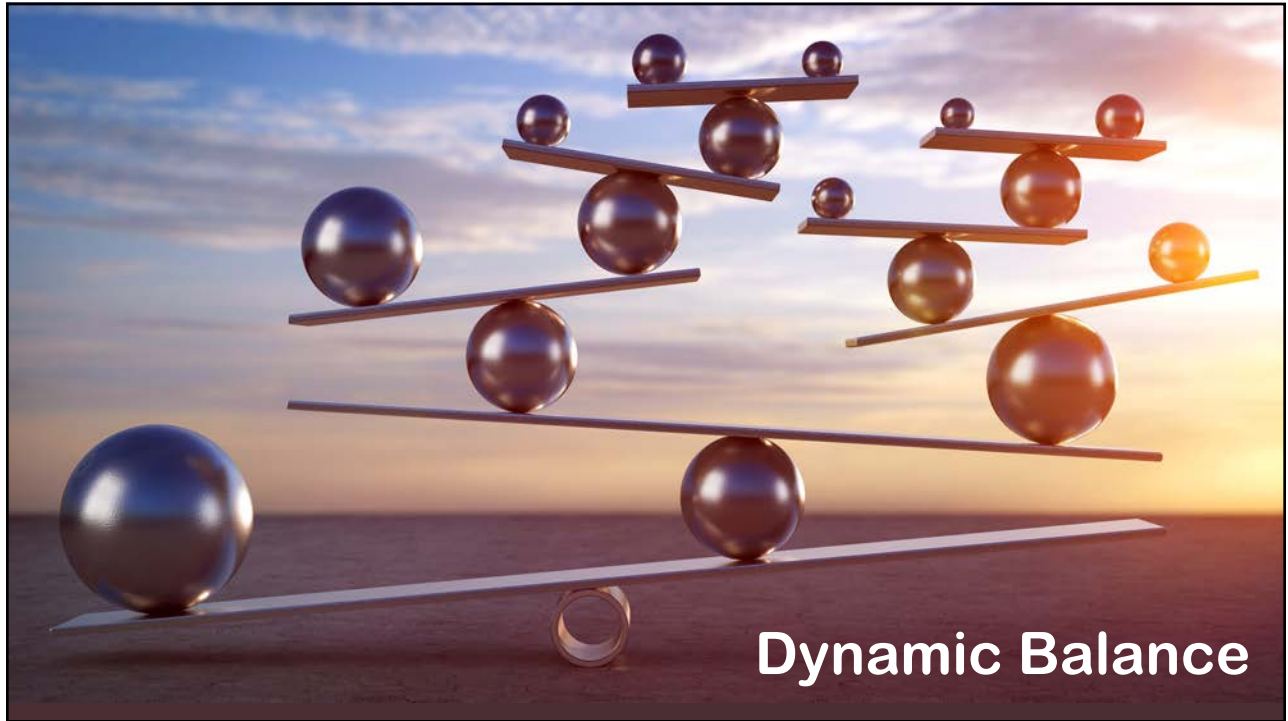
- Schizophrenia, psychosis and mania
- Mood disorders (depression, anxiety)
- Organic brain disease – especially mental retardation at a greater incident rate in children
- Autism (a self-centered or self-focused mental state with no basis in reality)
- Alzheimer's disease
- Old age
- Anorexia
- Constriction of the blood vessels
- Blood clotting
- Constriction of bronchials and other physical effects

Reduced Serotonin Metabolism

- Suicide (especially violent suicide) and multiple suicide attempts
- Violent crime, arson, hostility and more contact with police
- Hostility, increased arguments with spouses, friends and relatives and loss of employment due to hostile behavior
- Insomnia and depression
- Alcohol abuse and dependence on various substances
- Impulsive acts with no concern for punishment, reckless driving, exhibitionism
- Bulimia
- Obsessive compulsive behavior

<http://www.drugawareness.org/ssri-facts/ssri-meds/>

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Nudging the Body Back to Homeostasis

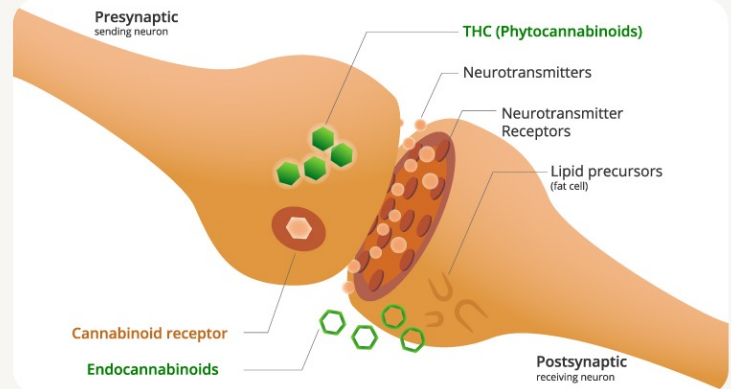
- The goal of natural therapy should be to:
 - Supply the body any nutrients or substances it is missing in order to operate properly
 - Remove any substances that may be damaging the body or interfering with function
 - Help the person mentally and emotionally return to a higher and more natural state of balance



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Endocannabinoid System

- A feedback system that helps to modulate or balance cellular responses
- The most recently discovered messaging system



ENDOCANNABINOIDS



Anandamide



2-Arachidonoylglycerol

PHYTOCANNABINOIDS



Cannabinol



Cannabigerol



Cannabidiol



Cannabichromene




Tetrahydrocannabinol



Tetrahydrocannavarin

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THC
TETRAHYDROCANNABINOL

- **THC is the phytocannabinoid that produces the psychoactive effects in marijuana**

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THC (Medical Marijuana)



- **Properties: Anti-inflammatory, anticonvulsant, antispasmodic, antitumor and antioxidant**
- **THC rich cannabis may be helpful for:**
 - Chronic pain (arthritis, migraines)
 - Anxiety
 - Depression
 - Insomnia
 - Poor appetite
 - Digestive ailments, nausea and vomiting
 - Chemotherapy side effects

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CBD
CANNABIDIOL

- CBD is a non-psychoactive phytocannabinoid in cannabis

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CBD (High CBD Cannabis)



- Has no psychoactive effects
- Does not directly attach to receptors, modulates their activity
- Properties: Anti-inflammatory, anticonvulsant, anti-anxiety, antidepressant, antiparasitic, antibacterial, antitumor
- CBD Rich Hemp may help:
 - Inflammatory diseases
 - Autoimmune diseases
 - Epilepsy
 - Cancer
 - Gastrointestinal disorders
 - Anxiety and/or depression
 - Psychosis

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Striving for Balance

- Altering the balance of the endocannabinoid system may help move the body towards homeostasis, but it will not fix:
 - Poor thought processes and life choices
 - Nutritional deficiencies
 - Poor health habits (losing sleep, not exercising, not drinking enough, etc.)
 - Toxicity
- Therefore CBC and other cannabinoids should ideally be part of a holistic approach to health



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Upcoming Education

- Channels, Cycles, Constitutions and Chinese Herbs
 - Nov 7, 14, 21 at 5:30 PM MT (\$60, \$5 members with Chinese Herb Bundle \$74, \$25 for members)
 - (<http://treelite.com/proddetail.php?prod=lc-813&cat=17>)
- A Holistic Approach to Disease
 - Two free webinars on Dec 5, 12 at 6:00 PM MT introducing next year's member webinar series (<https://events.genndi.com/channel/wholisticapproach>)
- 2019 Healthy Perspective Webinar Series
 - <https://events.genndi.com/channel/healthyperspective>
- 2019 Seeking Light and Truth
 - Webinar series: <https://events.genndi.com/channel/seekinglight>

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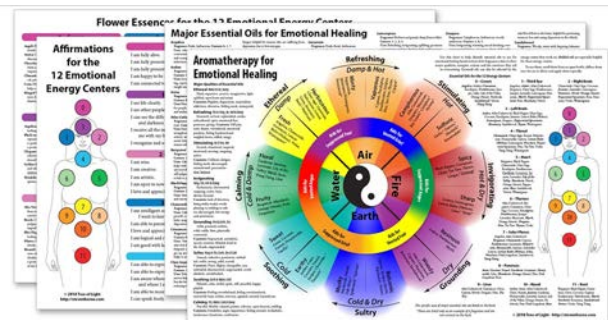


<https://events.genndi.com/channel/healthyperspective>

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