



Aromatherapy for Brain Health

ALZHEIMER'S, COGNITION, DEMENTIA, FOCUS, MEMORY

By: Jennifer Pressimone

Aromatherapy for Brain Health: Alzheimer's, Dementia, Focus & Memory

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BRAIN HEALTH

Do you ever feel confused, fuzzy, have trouble recalling a memory, indecisive, mentally exhausted, fatigued, easily distracted, have a slow response time, problem solving difficulty, unproductive or have excessive mental chatter? I know that is a loaded question, but too often, we can say yes to over 50% of those questions. We may feel alone, defeated, like a failure, unworthy, incompetent, and apprehensive which can lead to anxiety and depression. These in turn feeds this vicious cycle and it seems like a never-ending battle.

I often times hear people say, “if I could only remember”, “if I could do that better”, “if I could do that faster”, “if I could only make a decision”... We’ve all been here at one time or another. But *why* does this happen? Why do we have trouble remembering? Why do we have a difficult time problem solving or making a decision? Why does it take us twice as long to learn something than when we were in elementary school? Well, don’t beat yourself up. It’s not always about the physical brain falling apart as we get older. It is also about the condition in which we surround our brain (head and gut brain) throughout our life that is a major contributor. Lack of brain function, and Dementia is not a part of normal aging. If you continuously strengthen your brain, it will continuously function at an optimal level.

Science shows the brain may start deteriorating 10-20 years before actual memory or cognitive impairment symptoms appear. So, this is not something that pops up overnight, but rather an accumulative effect over time. Science has shown that our brains shrink on an average of 5% every decade we live over 40 years of age². Did you read that carefully? I said, “on average”. Just because statistics say something is true, it doesn’t make it an automatic reality for you. Statistics use the “law of averaging”. You don’t have to be a part of the average population. You have the choice to do better, be better and choose better. You control what environment you surround your brain with. Is it sugar-filled or pH balanced diet? Do you allow for meditation 30 minutes a day or 24/7 chaos and hysteria? Is it a chemical-free or chemical-filled cleaning environment? There are many tools you have at your fingertips to reduce your chances of being an average statistic.

Statistics show that over 25 million people globally, 5 million of which are in the United States, currently experience some form of dementia³. It will affect women 2:1 over men, and will be the cause of death in 1:3 seniors (over 65 years of age). This is expected to triple by 2050. Dementia is the 6th leading cause of death in the United States. Every 66 seconds, someone in the US is being diagnosed with Alzheimer’s Disease, which accounts for approximately 60-80% of dementia⁴. My advice, “may you never know the disease you prevented”. Why do you have to wait to be diagnosed with something before you are willing and committed to do something about it? Why do you enjoy operating from a reactive position rather than a responsive, preventative position?

What is dementia? The National Institute on Aging’s Alzheimer’s Disease Fact Sheet explains that dementia is the loss of cognitive functioning (thinking, remembering, and reasoning) and behavioral abilities to such an extent that it interferes with a person’s daily life and activities.” When our quality of life is comprised and we must become dependent on others for mental and physical help, having options to manage your stress and responses to the situation can prove highly beneficial.

It is no secret that we all will experience some form of aging deficit. Let's take a deeper look at our amazing brain and its capabilities. I am a big proponent of having the skills to make wise, effective decisions. But first, you must have some knowledge of how something works, why it works and when it works.

- Your brain is about 3 pounds, uses 25% of your blood sugar, is 70-75% water and 50-60% good fat (approx. 35% is comprised of omega-3's).
- The brain does not have any pain receptors, so it cannot feel pain.
- Your brain develops from the time you are in the womb until you are 18 years old.
- Emotions, such as fear, anger, grief and joy begin at the time of conception.
- Negative situations, environments and stress have been shown to affect brain development and function (mental disorders, depression) from children to seniors⁵.
- A study of one million students in New York City schools showed that students who ate healthier lunches (no artificial flavors, preservatives or dyes) did 14% better on IQ tests than students who ate lunches with these additives⁶.
- Every time you recall a memory, have a new thought or learn something new, you create new neuronal connections in your brain (synaptic plasticity) or grow new nerves (neurogenesis), which keep it active. An active brain produces better and stronger cognitive functions⁷.
- Sleep deprivation affects memory⁸ and cognitive performance in adolescents⁹.

THE UNHEALTHY BRAIN

Our brain is a part of the Nervous System (NS). It is where NS functions begin and end. It receives information about what is happening all over the body and around us at any given moment then sends orders to different muscles to take action. This system manages emotions, memories, thoughts, reasoning, creativity and knowledge. When working on strengthening the brain, one must also strengthen the NS. Any imbalance of the nervous system will directly affect brain functions.

What does an "unhealthy" brain look and feel like? How do you know if you should pay extra attention to supporting your brain? As we age, certain deficits in functions and structure will occur. The brain will shrink and circuitry function will decline¹⁰. The accumulative affect will result in one or more of the following issues.

- Lack of memory and memory recall
- Trouble focusing, concentrating, staying alert, making clear decisions, not able to "connect the dots", problem solving, learning ability, confusion, easily distracted (Vitamin B deficiency) and unable to multi-task with ease.
- Mentally and emotionally irritable, agitated, angry, frustrated and depressed (connection to poor elimination).

- Weight gain, hungry all of the time and addictive tendencies (food, smoking, alcohol, etc.)
- Experience anomia (tip-of-the-tongue syndrome) more often or frequently.
- Stroke, in which 10% of survivors will develop dementia¹¹.

Behavioral conditions such as ADD, ADHD and Autism can affect cognitive function. These conditions currently affect over 7 million children. There is no objective test for ADHD (only subjective opinion). Statistics show that approximately 60% of members of families with hyperactive children have diabetes, obesity and/or alcoholism – all sugar consumption problems. A light bulb should be going off right about now. Dr. Timothy Buie is a pediatric gastroenterologist from Harvard who has conducted several research studies showing the gut-brain relationship in Autism. His work demonstrated the power of supplementing with a dietary enzyme formulation (*enzymes help us digest food, but also emotions, neurotransmission, etc.*) to improve socialization, hyperactivity, attention, eye contact, comprehension and compulsions. Results ranged from 50-90% depending on the parameters measured¹².

KNOWN CONTRIBUTORS TO AN UNHEALTHY BRAIN

There are several known contributors to the decline of brain functions. Let's begin with genetics (DNA sequence) and epigenetics (DNA modification). Both play an important part in brain development, function and aging¹³. Epigenetic biomarkers such as DNA methylation, histone modification and non-coding RNA mediated regulation have been shown to serve a crucial role in Alzheimer's Disease progression¹⁴.

Aging in general is a contributor for dementia¹⁵. During the normal aging process, amyloid plaques (sticky build-up of proteins) form on the outside of nerves cells (neurons) that can "suffocate" cells and block cell-to-cell signaling¹⁶. These amyloid plaques have not only been linked to dementia in the elderly, but also in adolescence exposed to certain drugs such as ecstasy and cocaine¹⁷. It has been shown that these plaques can activate an immune response which in turn trigger inflammation, another major contributor to dementia, as well as other diseases and imbalances of the mind and body. There is now amyloid PET imaging, a potentially revolutionary advancement in the assessment of those with cognitive impairment, that can identify plaques in the brain which are prime suspects in damaging and killing nerve cells in Alzheimer's. Before amyloid PET, these plaques could only be detected by examining the brain at autopsy¹⁸.

Inflammation has been proven to be a significant contributor to cognitive decline such as memory, construction, language, psychomotor speed, and executive function¹⁹. The results in this study suggest that total inflammation is associated with memory and psychomotor speed. In particular, systemic inflammation, vascular inflammation, and altered endothelial function may play roles in domain-specific cognitive decline of non-demented individuals. Curcumin, a known anti-inflammatory herb has shown promising results in the prevention and possible treatment of Alzheimer's²⁰.

What are some contributing factors that could trigger an inflammatory response in the body? One is toxic, chemical and environmental exposures that may cause damage to receptor sites, thus delaying or inhibiting proper neuronal messaging. Neurotoxins have been shown to bind with bile in the gall bladder causing the brain to absorb these chemicals more easily. A research study of baby teeth found high amounts of nuclear waste and nuclear fallout in people with Alzheimer's. Heavy metal toxicity (i.e. mercury, aluminum and lead) has been linked to memory deficits and neurodegenerative diseases²¹.

Unhealthy lifestyle habits such as smoking, alcoholism, sleep deprivation, lack of movement or exercise, nutritional deficient diets and stress significantly affect overall brain function.

Many nutritional deficiencies (Vitamins B₁ [alcohol abuse], B₆, B₁₂, folate [can decrease homocysteine levels], D and zinc [anosmia],) are linked to decreased brain function and increased dementia²².

Oxidative stress (enhanced free radical damage with inability to effectively detoxify resulting in cellular damage and an unhealthy internal environment) has been proven to decrease the life of cells, and inhibit their overall function²³. In turn, as an accumulation of "unhealthy cells" inhabit us, we begin to experience deficits and issues that manifest. Mitochondrial dysfunction also further feeds decreased neurological performance²⁴. The mitochondria play a pivotal role in neuronal cell survival or death because they are regulators of both energy metabolism and cell death pathways²⁵.

Emotional and mental stress and "burnout" can overtax the brain's ability to think rationally, remember, solve problems, be creative, decisive or to learn something new²⁶. A study showed that adolescent boys with antisocial and aggressive behaviors had impaired cortisol stress reactivity²⁷. Cells play an important role in neurotransmission so when stressed, deprived of oxygen and nutrients, they start to die off thus "not showing up for work". Essential oils have the ability to resuscitate dying cells, and revive them. I have coined this concept as "CPR for cells".

Lack of exercise or movement can create stagnation in the body, impeding on the body systems ability to communicate and function optimally. This can lead to cognitive and mental imbalances.

Neuroendocrine, Glandular and Metabolic Dysfunction are contributors to confusion, thinking and reasoning²⁸. Most people don't realize that thyroid, adrenal, reproduction (hormones) and pancreas (blood sugar) are so closely interconnected and can wreak havoc on our brain's ability to function. I call this acronym "TARP" as these are the four wheels on our body's vehicle with the liver serving as the engine. Thyroid imbalances, especially hypothyroidism has been linked to cognitive deficits such as memory, visuospatial organization, attention, and reaction time²⁹, which can lead to the onset of dementia.

Other contributors to an unhealthy brain are Traumatic Brain Injury (TBI), Post-Traumatic Stress Disorder (PTSD), family history of degenerative diseases (Alzheimer's Disease, Parkinson's or other Dementia related illness), psychiatric disorders, chronic infections (respiratory, sinusitis and viral) and a history of diabetes. More recent studies are showing

an accumulation of insulin in the brain, and referring to Alzheimer's as Type 3 Diabetes, which selectively involves the brain and has molecular and biochemical features that overlap with both type 1 and type 2 diabetes mellitus³⁰.

EARLY DETECTION AND WARNING SIGNS OF DEMENTIA

Much of what we know about Dementia has evolved over the last 15 years. There are more advancements and extensive research in the early detection and diagnosis of dementia. Although there is no "official test" to identify Alzheimer's (it used to only be proven during an autopsy), there are several assessments that can be done including an individual's history, genetic profiling, physical and cognitive examination, cerebrospinal fluid protein testing, blood tests (biomarker indications) and brain imaging such as a CT or MRI³¹.

When memory, thinking and learning ability starts affecting your daily life, it is time to seek professional help. The Alzheimer's Association shares 10 early detection warning signs of dementia and Alzheimer's including memory loss, problem solving challenges, difficulty completing familiar tasks and confusion. Click here to view the full list - <http://www.alz.org/10-signs-symptoms-alzheimers-dementia.asp>.

At the 2016 Alzheimer's Association International Conference, sight and smell were connected to Alzheimer's and labeled as the "window to the brain". Studies showed that with dementia, the retinal nerve narrows and odor detection decreases³². Other studies show a decrease with Parkinson's and Idiopathic REM-Behavior Disorder (iRBD)³³. I have also found that the ability to taste decreases as well since they are closely entwined³⁴.

WHAT CAN YOU DO ABOUT IT?

What are some of the preventative and reactive measures we can take to strengthen, nourish, support, rejuvenate and restore our brain and body? No matter where you research, the majority of resources say the same thing...stay active - physically and mentally, eat healthy and take care of your body.

Staying active - physically, mentally, emotionally and socially - has been shown to extend your quality of years living by as much as 5 years³⁵. Exercise has also been linked to improved brain function. This means doing some form of exercise for about 30 minutes a day like walking, swimming or running. Having a social support system, I have found is crucial to mental and emotional health. Hanging out with friends and interacting with other people a couple times a week, is beneficial as it engages certain parts of your brain. When someone doesn't feel supported, it has been connected to poor bone health, feeling defeated, lonely and unworthiness. Some tasks to keep your brain active is crossword puzzles, word searches putting puzzles together, learning how to play a musical instrument, sports or a new exercise routine, memorization and remembering practices, do math in your head and problem-solving games. Having a hobby, especially when you can do it with a friend is a lot more fun and it holds you accountable to "show up" and take action.

Following a healthy eating regimen is just as important as activity. When you eat the right foods, it can enhance your body's ability to absorb and utilize nutrients as well as eliminate the waste effectively. When you eat foods that don't agree with your body, it can cause congestion with your lymphatic, hepatic, respiratory and urinary systems which can lead to a host of health issues, physically and mentally. There are certain foods that have been scientifically linked to better brain health such as fat-rich foods like avocados and salmon, fruits since they are high in antioxidants, vegetables which supply vitamins and minerals, and nuts and legumes which are high in proteins. Here is a link that has some great insight on foods and brain building tips - <http://www.foodforthebrain.org/alzheimers-prevention/6-prevention-steps.aspx>.

Taking care of your body and mind by doing a “tune-up” on your body systems and organs every year. The main culprits linked to dementia are circulatory, diabetes and liver function. The two biggest factors I see in overall health whether we are talking about brain or body, is stress management and better elimination (taking the trash out). I was listening to Jordan Rubin, author of the *Maker's Diet* and *Maker's Diet Revolution*, share this concept on his ranch in Missouri a few years ago and it makes total sense. When we are less stressed, our body systems function better in this “happy” environment, our pH is more balanced so we can take in more minerals and vitamins, less inflammation occurs and energy levels go up. When our colon releases the wastes after each meal (you should have a bowel movement after each meal within 30-60 minutes), our body is freed up from unwanted debris and an unhealthy internal environment. Aromatherapy is a huge part of stress management along with other supporting tools like herbal supplementation, hydration, meditation and journaling. We will go into specific details on all of these later in this book.

LIMBIC SYSTEM & OLFACTION CONNECTION TO THE BRAIN

Our nose is a protrusion of our brain, also referred to as the “external brain”. It tells your body what is going on around you and how you should respond or react. When your nose smells a scent, it goes directly to the brain via olfactory nerves that line the path to transmit scent information. Your sense of smell, olfaction, is the only sense that does not go through your spinal cord or digestive tract to be processed. It elicits an instant effect which can illustrate how powerful it is for mood, behavior and cognition.

Aromatherapy has long been linked with enhancing cognitive functions such as analytical thinking, problem-solving, learning ability, memory recall, concentration and more. Memories triggered by scent have stronger emotional connections, therefore appear more intense than other memory triggers such as sight, sound or touch³⁶. The Limbic System is the “oldest part of the brain”. It is a collection of structures (olfactory bulb, hypothalamus, hippocampus and amygdala) to allow us to elicit emotion, behavior and responses. The olfactory bulb is the scent recognition center. The hypothalamus receives information and regulates body temperature, emotions, hunger, etc. The hippocampus converts short-term memories into long-term memories for storage. It is also responsible for learning and has been linked to being the hub of where dementia begins. The amygdala determines what memories are stored where and is responsible for emotional regulations. Deficits with any

one of these areas, can contribute to cognition weakness. Imagine if there were deficits in more than one of these areas.

Olfaction health is associated with our overall health. Many studies show a decline in olfaction with dementia and particularly with Alzheimer's³⁷. Scent triggers memories to remind us what we were feeling, wearing and thinking at a given time. It connects our feelings and emotions to create a "scent imprint". A pleasing scent can promote immediate joyful memories, while a smell experienced during a traumatic event can elicit a negative or unpleasant memory (PTSD). Several Nobel Prizes have been awarded in the field of olfaction, including a 2004 Nobel Prize in Physiology for the discoveries in the relationship of the odorant receptors in the olfactory system.

There is a strong interconnected relationship between our "head or upper brain" and our "gut or mid brain" with the limbic system. There are several contributors to our greater understanding of the gut-brain, mind-body, microbiome-olfaction understanding including Michael Gershon, author of the *Second Brain* and Dr. Nicolas Meunier, a speaker at the upcoming 4th World Congress of Targeting Microbiota in Paris, France, October 2016, where he will present new research finding on *Olfaction & Microbiota*³⁸. Also, more studies are being conducted on the microbiota-gut-vagus-brain axis to show its importance in maintaining homeostasis and its involvement in the etiology of several metabolic and mental dysfunctions/disorders³⁹. We will discuss the Gut-Brain Connection in more detail in the next couple of chapters.

ABOUT AROMATHERAPY?

WHAT IS AROMATHERAPY?

Most people think aromatherapy is just about smells. It is more than that. Not only can they make us feel good, there is science that proves it can alter our physical, mental and emotional chemistry. A pure essential oil should shift, alter, adjust, change, inspire, empower and motivate behavior, actions and feelings. It affects us physically, mentally, emotionally, spiritually, nutritionally and environmentally. It can inspire positive awareness, self-love and self-forgiveness.

Our sense of smell, also known as olfaction, is very powerful. It is our only sense that does not go through the spinal cord or digestive tract to be processed. It is instant. Someone with anosmia (no sense of smell), or a decreased sense of smell can even receive benefit from sniffing an essential oil, although they cannot detect the odor. The therapeutic properties still permeate. Our nose is a protrusion of our brain and allows our internal nervous system to stay in constant contact with our external environment. It is operated via the Limbic System where thinking and analytical development occurs and dictates our reaction to a situation. Smelling can reduce stress, enhance body functions, improve immunity, elevate mood, promote spirituality, manage emotional imbalances, focus, memory, concentration and so much more.

AROMATHERAPY HISTORY

There is over 9000 years of historical data teaching us about the power, benefits and uses of botanicals. Most historical references talk about the actual herb form. In later years, we see the Egyptians teaching about the power of distilling the plants and creating essential oils. It wasn't until 1937 that Rene Gattefosse coined the term "aromatherapy".

The Greeks used rosemary to strengthen memory. The Egyptians used the botanicals to help with sleep, anxiety and in other medicinal preparations. The Chinese employed them in their food for intestinal health and improved digestion, which resulted in better thinking. And the Europeans used this as their first way of medicine, and often use in culinary dishes for nutritional purposes. Thyme for example was used for in foods to aid in digestion and inspire courage, especially before battle.

Essential oils were used during the European Plagues, WWII to disinfect hospitals, to treat the battle wounds of Soldiers when drugs were scarce and to help Psychiatric patients wean off chemicals (Valnet, Gattefosse).

Essential oils are a plant therapy, derived purely from plants. Any "essential oil" that is adulterated, altered, diluted or genetically modified, is a fragrance, not a pure essential oil. When I say pure essential oil, I mean an oil that produces therapeutic benefits by eliciting a healthy response in the body and mind.

AROMATHERAPY SAFETY

Essential oils are powerful combinations of chemical constituents that can deliver therapeutic benefits when used correctly. However, when used improperly or in excess, it can overload the body, gut and brain leading to some toxicity. I highly recommend that you use caution with each essential oil and essential oil blend you use, understanding the benefits, contraindications, application methods and interactions with your body and prescription use. My favorite aromatherapy safety reference book is by Robert Tisserand, *Essential Oil Safety*, 2014.

Having the proper training can help you "aromatherapy responsibly" and give you not only the knowledge and skills, but also confidence that you are choosing the right remedies in the right proportions for you and your family. Here are some general safety guidelines everyone should follow whether a beginner or well-seasoned Aromatherapist.

- Keep out of reach of children, pets and those with dementia and Alzheimer's (to avoid ingestion and misuse).
- Use caution when using essential oils when serious health concerns exist, such as seizures, epilepsy, high blood pressure, taking blood thinners, pacemakers, etc. It is recommended that you consult your healthcare provider and in some cases your pharmacist to understand the contraindications with the prescription medications you are taking.

- Dilute your essential oils in a fat-based carrier (essential oils are not water-soluble, they are fat soluble) prior to topical application, as it can cause sensitivities, reactions and affect receptor site functions. A Neat (or undiluted application method) is helpful in some instances such as applying *Lavandula angustifolia* to an insect bite to calm redness and itching. This method is meant for short-term use, with essential oils that are very gentle.
- Essential oils have a complex chemical make-up. Any form of ingestion considered should be done when working with a highly trained or medical professional as it can irritate esophageal lining and affect kidney and liver function.
- Avoid direct sunlight and tanning beds within a 4-hour period after topical use of citrus essential oils, as these are phototoxic, also known as photosensitive. This means it may cause unwanted, and in some cases severe skin pigmentation.

AROMATHERAPY QUALITY

Quality is an important factor when choosing essential oils. Often times, people let price dictate their buying action, however, the old saying “you get what you pay for” definitely applies. When you understand what is involved in the production of essential oils - from the farming and harvesting practices, to the plant material production capability (amount of oil that can be produced from a leaf, or petal, etc.), distillation process, quality assurance and batch testing, bottling and getting it consumer ready – you know to expect an equivalent pricing per essential oil. For example, peppermint leaves are very “juicy” and can produce a high amount of essential oil during distillation compared to a rose petal, which is much more delicate and “less juicy”. Thus, peppermint essential oil will be less expensive than rose essential oil.

When we talk about quality assurance, some factors include essential oil purity (free of adulteration, added chemicals and pesticides), potency and testing practices to ensure an essential oil has the highest chemical constituents which translates into providing the therapeutic properties it is historically known for. When a plant is altered, even genetically modified, it will alter the chemical structure thus reducing or changing the benefit power.

Essential oils do not have a grading system. Years ago, in the late 1990’s to early 2000’s, Aromatherapist would describe essential oils as having “therapeutic-grade benefits”. This definition was used to explain the benefits produced by an essential oil were therapeutic. Not necessarily that it followed a “grading system” by an organization or association such as the FDA. This term was later adopted by a few companies in their marketing campaigns which has led to some confusion and misinformation in the aromatherapy marketplace. An oil is either pure or not. Organic is nice to have but not always possible depending on a farmer’s location and ideal crop growing conditions. Wild-crafted in some instances may produce a more potent oil.

When we talk about a 100% pure, unadulterated essential oil, we are talking about an oil that is a 100% plant extract concentrate (from the proper botanical species), that is undiluted, uncut, uncontaminated and unaltered. When you use a pure essential oil, it

provides varying potencies of properties such as antioxidant, antibacterial, antiviral and antifungal. Overall, it can increase immune function, overall vitality, mood and body system functions. It can connect our physical, mental and emotional states supplying a balancing, harmonizing and/or rejuvenating effect. Synthetic or altered scents, may smell good, but they have an opposite effect on our mind and body. It has been shown to congest the lymphatic system, overload the detoxification processes and elicit allergic responses.

Bottom line, know what essential oils you are choosing to use with yourself and your family. Many people pay more money for designer handbags, shoes, clothes and appliances than they do for their vitamins and herbs. Isn't your internal health more important than just looking good on the outside? Do you want a nice shiny engine, or an old rusted one running your vehicle?

GUT-BRAIN CONNECTION

There is a true Mind-Body connection in all of us and our pets. All body systems work synergistic, not independent of one another. It is responsible for our mind, mood and behavior. The two main powerhouses that activate communication is our Gut and Brain, aka "Two Brains". Both are created out of the same type of tissue and communicate via our nervous system to generates responses. The brain communicates via the central nervous system and the gut communicates via the enteric nervous system (this separation occurs in fetal development). They are connected via two key pathways - the vagus nerve (also known as the 10th cranial nerve) and spinal cord.⁴⁰

Some suggest the gut should actually be considered the first brain since it largely controls the body and sends far more information to the brain than the brain sends to the gut.⁴¹ Dr. Michael Gershon, author of *The Second Brain*, and a professor of anatomy and cell biology at Columbia-Presbyterian Medical Center in New York, shares that the gut-brain plays a major role in human happiness and misery. He links the "butterflies in my stomach" sensation to anatomy and physiology⁴². According to Dr. Keith Scott-Mumby, author of *Secrets of an Alternative Doctor*, the gut "brain" has all the neurotransmitters of the upper brain, including 90% of the body's serotonin - our "happy neurotransmitter". Research shows the importance serotonin has on cognition and memory⁴³. In order for serotonin to make its way to the brain for rational and optimal thinking and responding, our nerves must be in its best condition by way of essential fatty acids, hydration, minerals, stress management and proper elimination. A healthy gut flora is needed to create an optimal microbiome (reference-intestinal presentation). Hence, the science showing the root of disease, mental health disorders and serotonin uptake occurs in the gut.⁴⁴

When you understand the body's "language", or why it is responding the way it is whether in the form of a pain, spasms, palpitations or joy, you realize that most physical issues can be linked to emotional distress and vice versa. This is a perfect example of gut-brain interactions. Proof that we are interconnected in every way - physically, mentally and

emotionally. The mind-body connection plays a pivotal role in our daily function but can be influenced by environment, lifestyle, circadian rhythm and nutrition.

Essential oils are a powerful tool because when you match up an oil's personality to a particular imbalance or disharmony, you can be more specific in your intention when blending specific oils together to conquer effective results. For example, we hold the emotion of fear in the kidneys. Fear can prompt a urinary infection, just as a urinary infection can heighten a sense of fear. Frankincense is my favorite essential oil to combat fear, especially when combined with lavender and pine. It is also a urinary support oil.

HEAD, MIND, BRAIN - THINKING CENTER

Herrings law says healing starts in the mind, from the head down, inside out (internal terrain to external appearance) and reverse order of symptoms (present to birth). It's no coincidence that our head is responsible for our thinking and assessment of a situation. When we can assess incoming stimuli, we can then determine what action needs to happen. In order for this process to happen, our head brain needs to connect to our gut brain via the feeling center, to put our entire being in alignment. When your head, heart and gut are in unison, you make better, clearer, more precise and accurate decisions.

The brain is responsible for processing stimuli and delivers messages to initiate voluntary and involuntary action. When we experience mental imbalances, we may have a harder time with focus, concentration, confusion, creativity, worry, problem solving, mental chatter, overthinking, articulation, headaches and insomnia.

Certain essential oils have a stronger affinity to enhance brain function, thinking and mental strength such as basil, lemon, peppermint, rosemary and vetiver. Inhalation is the best way in my opinion to enhance overall cognitive functions.

HEART - FEELING CENTER

Our heart is the connector between the head (thinking) and gut (intuition, action and learned behaviors). It houses the "follow your heart phenomena" and the "heart wants what it wants". The heart center should be in alignment with your head (thought, rational) and gut (instinct) in order for healthy assessments, decisions and actions to occur.

If we evaluate emotions, they are e-motions, or energy in motion. They require movement to avoid stuckness. Have you ever had a thought you couldn't move past, like grudges? It can consume you and overrule you. If your head and gut can align with your heart, then movement occurs and you can release those negative, consuming thoughts and behaviors (i.e. addictions).

Emotions are triggered by experience, genetics, environment, conditioned behavior, hormones, nutrient deficiencies and body system imbalances. Every experience you endure is a stepping stone in your life's path and a lesson to be learned to help you deal with a

future situation. This experience helps you develop skills to enhance thinking but also to help you tap into your intuition. When we experience emotional imbalances, we may have anger, rage, bitterness, resentment, frustration, emotional exhaustion, fear, grief, guilt, shame and loneliness, just to name a few.

Certain essential oils have a stronger affinity to enhance the heart center such as bergamot, cinnamon, jasmine, peppermint, rose, rosemary and ylang ylang.

GUT – ACTION CENTER

I often refer to our gut as “grand central station”. It elicits and instigates the necessary action to be taken (transportation) for a given situation. When in alignment with the head (thinking and assessment) and the heart (feeling and emotions), better action and responses are taken. When we have stresses, the gut is highly affected, but when we are in harmony, we can handle situations with more ease, confidence and energy.

The gut is responsible for assimilation, absorption and utilization of nutrients in addition to the elimination of waste. It houses our second brain and manages neurotransmission operations via nervous system communications. Many factors such as stress and nutrition, influences gut health and overall body system functions. As you may have realized by now, there are two main influencers of the Gut Center – stress and elimination. Both contribute to inflammation which has been shown to be the root of all disease. Hence, I find anti-inflammatory, Mediterranean and pH balanced diets are most beneficial for optimal brain function.

When we experience physical imbalances, we may have more sluggish circulation (veins), digestion, respiratory, liver, bones and muscles, joint pain, urinary, nerve pain and “TARP” (thyroid, adrenal, reproductive, pancreas) imbalances. Certain essential oils have a stronger affinity to enhance the gut center such as cinnamon, fennel, ginger, peppermint and thyme.

TOP 10 ESSENTIAL OILS FOR BRAIN HEALTH

Brain waves allow us to be flexible and responsive to stimuli during the day while relaxing and restoring our body and mind at night. Essential oils can influence our brain waves⁴⁵. Lavender (*Lavandula angustifolia*) was shown to relax brain waves⁴⁶. Rosemary (*Rosmarinus officinalis*) and Jasmine (*Jasminum sambac*) were shown to stimulate brain waves⁴⁷.

- Beta: normal consciousness, heightened sense of alertness, logic and reasoning. When imbalanced it can lead to stress, anxiety and restlessness.
- Alpha: deep relaxation, meditation, visualization, imagination, concentration, memory and learning. When imbalanced it can lead to agitation and frustration.

- Theta: light mediation and sleep, including REM. When imbalanced it can lead to restlessness and hyper-exhaustion. That in-between sleep state.
- Delta: deep sleep, transcendental meditation, less aware, unconscious mind, healing process and regeneration takes place. When imbalanced, health issues manifest.
- Gamma: insight and high level of information processing

Lavender: *Lavandula angustifolia*

- Benefits:
 - Increases alpha waves which helps keep someone “in the moment” longer, reduces stress, irritation, aggravation, disruptive and agitated behavior, depression, disappointment, frustration and “viper” remarks. Helps with sleep (getting to sleep and staying asleep) and circadian rhythm balance.
- Properties: analgesic antibacterial, antifungal, anti-inflammatory, antiviral, calming, cephalic, febrifuge, nervine, relaxant, sedative, vasoconstrictive
- Contraindications: none
- References:
 - A Texas health care facility won the “Best Practices” award from department of health in 2003 (Aromatherapy Journal, Winter/Spring 2005) after using an aromatherapy (lavender) protocol to decrease the amount of psychotropic medications needed in Alzheimer’s patients.
 - https://www.researchgate.net/publication/225051306_The_Effects_of_Lavender_Oil_Inhalation_on_Emotional_States_Autonomic_Nervous_System_and_Brain_Electrical_Activity
 - <http://www.ncbi.nlm.nih.gov/pubmed/20377818>: aromatherapy effects with Alzheimer’s
 - <http://www.ncbi.nlm.nih.gov/pubmed/17342790>: lavender calms agitated behavior in elders with dementia

Frankincense: *Boswellia carterii*

- Benefits:
 - Stimulates the limbic system, elicits calming psychological effect, relieves anxiety, depression and nervous tension, clears melancholy and morbidity. Helps with decisiveness, meditation, confusion, overthinking, awareness, courage, panic, hysteria and fear.
- Properties: analgesic, antibacterial, anti-depressant, anti-inflammatory, antiviral, calming, grounding, febrifuge, relaxant
- Contraindications: none

- References:
 - <http://www.ncbi.nlm.nih.gov/pubmed/27222832>: memory and spatial learning (2016 study)
 - <http://www.ncbi.nlm.nih.gov/pubmed/25657807>: decreases negative effects of seizures on cognitive function
 - <http://www.ncbi.nlm.nih.gov/pubmed/21287538>: reduction of cerebral edema with irradiated brain tumors

Rosemary: *Rosmarinus officinalis*; *verbenone*

- Benefits:
 - Provides higher oxygen content within the blood, brain strengthener, memory, focus, concentration, stimulates circulation, articulate, communication, confidence, forgetfulness, negativity, foggy, diabetes, performance speed and accuracy. Helps with vasoconstrictive headaches, your head feels like it is being squeezed in a vice and needs to be opened up.
- Properties: analgesic, antibacterial, anti-inflammatory, antiviral, cephalic, diuretic, stimulant, vasodilative (headaches), vermifuge
- Contraindication: Use caution with high blood pressure
- References:
 - <http://www.ncbi.nlm.nih.gov/pubmed/27113205>: improves cognitive deficits with TBI
 - <http://www.ncbi.nlm.nih.gov/pubmed/23983963>: cognitive performance
 - <http://www.ncbi.nlm.nih.gov/pubmed/12690999/>: cognitive performance

Peppermint: (*Mentha piperita*) or Spearmint (*Mentha spicata*)

- Benefits:
 - Used in Medieval times to heal gum issues (related to heart and circulation), nausea, diarrhea, fatigue, enhances alertness, focus, concentration, memory recall, mental fatigue, clarity, articulation, digestion, self-doubt, refreshes the mind to take in new ideas, anger, agitation, fear, courage to speak up for self, invigorating and stress tension. Vasodilative headaches (feels like your head is going to explode).
- Properties: analgesic, antibacterial, antifungal, anti-inflammatory, antiviral, antiseptic, antispasmodic, cephalic, febrifuge, restorative, stimulant
- Contraindications: use caution with overuse with asthmatics.
- References:
 - <http://www.ncbi.nlm.nih.gov/pubmed/23517650>: exercise performance

- <http://www.ncbi.nlm.nih.gov/pubmed/23011739>: neuroprotective against gamma irradiation (food, cancer)

Lemon: *Citrus limonum*

- Benefits:
 - Cleanses and purifies the blood, lymph and air, focus, concentration, clarity, creative, clear thoughts, alert, articulation, accuracy, depression, “lightbulb” effect to connect 2 & 2 together, imagination, inspire, wisdom, intellect, locomotor activity, sound decision making, anger, inner conflict, connects head-heart-gut, emotional stuckness, encourages laughter, feel overburdened, frustration, impatience, irritability, joy and optimistic.
- Properties: antibacterial, antifungal, antiviral, cephalic, diuretic, febrifuge, nervine, stimulant, vasodilative
- Contraindications: phototoxic
- References:
 - <http://www.ncbi.nlm.nih.gov/pubmed/24599102>: inhibit neurodegenerative conditions (oxidative stress)
 - <http://www.ncbi.nlm.nih.gov/pubmed/24462212>: neuronal function reduces serotonin induced head twitches

Orange/mandarin: *Citrus sinensis; Citrus reticulata*

- Benefits:
 - Supports the adrenals to help combat fatigue and exhaustion for the caregiver and the patient, calms nerves, anxiety, upset, overwhelmed, enhances overall vital energy, promotes a more restful sleep, creativity, confusion, anger, bored, focus, mental chatter, lonely, trauma, mood, PTSD and mental sluggishness.
- Properties: adaptogen, antibacterial, anti-depressant, anti-inflammatory, antiseptic, antispasmodic, antiviral, diuretic, febrifuge, nervine, relaxant
- Contraindications: Phototoxic
- References:
 - <http://www.ncbi.nlm.nih.gov/pubmed/25453523>: Increase physiological and psychological relaxation (with rose)
 - http://www.naturalnews.com/029155_orange_essential_oils.html: benefits

Cinnamon: *Cinnamomum zylancium*

- Benefits:

- Balances blood sugar, promotes feelings of comfort, safety and security, it's like giving yourself a "big hug", warming, spicy, indecision, nervous, emotional strength, grief, panic, losing self (independence, anxiety, bitterness, sleepiness, confusion, depression, exhaustion, joy, mental fatigue, mood swings, resentment, stress, bereavement, emotionally cold, fear, isolation, lonely, panic and warms the heart.
- Properties: antibacterial, anti-diarrheal, antifungal, anti-parasitic, antiviral, stimulant, stomachic, vermifuge
- Contraindications: Use caution with blood thinning Rx (may inhibit blood clotting). Skin and tissue irritant (undiluted). Use minimally with high blood pressure.
- References:
 - <http://www.ncbi.nlm.nih.gov/pubmed/27087648>: neuroprotective effect to against the ischemic stroke
 - <http://www.ncbi.nlm.nih.gov/pubmed/24946862>: Parkinson's disease
 - <https://www.ncbi.nlm.nih.gov/pubmed/25301673>: memory enhancing

Cypress: *Cupressus sempervirens*

- Benefits:
 - Helps provide a stable, grounding foundation to reduce scattered, spacey thoughts, swampy brain, anxiety, nervous, PTSD, enhances clarity, concentrate, creativity, right-sided issues, ADD, ADHD, autism and behavioral performance.
- Properties: antibacterial, antiseptic, antispasmodic, antiviral, diuretic, grounding, hepatic, tonic
- Contraindications: none
- References:
 - <http://www.ncbi.nlm.nih.gov/pubmed/25975497>: antioxidant benefits for Alzheimer's

Sage: *Salvia officinalis*

- Benefits: “
 - Commonly referred to as “sage wisdom”. Used over 1000 years ago for cerebrovascular disease. Guards against depletion of brain's concentration of acetylcholine (neurotransmitter that is crucial for proper brain function, according to research from King's College in London. Slows the development of Alzheimer's. It's grounding, calms tremors, helps with inflexible thinking, forgetfulness and mental chatter with rapid thoughts.

- Properties: antibacterial, antifungal, antiseptic, antiviral, cephalic, diuretic, febrifuge, nervine, relaxant, sedative, vasodilatation
- Contraindications: avoid during pregnancy, breast-feeding, epilepsy and seizures
- References:
 - <http://www.ncbi.nlm.nih.gov/pubmed/11697542>: Alzheimer treatment
 - <http://www.ncbi.nlm.nih.gov/pubmed/17168769>: cognition-enhancing
 - <http://www.ncbi.nlm.nih.gov/pubmed/12895683>: dementia therapy

Vetiver: *Vetivera zizanioides*, *Andropogon muricatus*

- Benefits:
 - Helps with ADHD, ADD and Autism, stimulation of the limbic region, feeling overwhelmed, it's the "glue" to hold everything together, inspires, purpose, self-discovery, alert, electrical brain activity, scholastic performance and drives anxious behavior into action.
- Properties: antibacterial, anti-inflammatory, antispasmodic, antiviral, antiseptic, nervine, sedative, tonic, vermifuge
- Contraindications: none
- References:
 - <http://www.ncbi.nlm.nih.gov/pubmed/27069728>: electrical brain activity

APPLICATION METHODS, DILUTION RATIOS & CARRIERS

Sensory testing is the key to custom blending, especially when working on an emotional and mental level. When working on yourself, your family or friends, have them smell various essential oils (testers) while documenting which ones they like and dislike. This process will help you to be more effective in formulating and creating a blend that offers immediate, effective results. It will also eliminate the cookie cutter approach of placing individuals in one category. This offers a unique and personalized way of helping yourself and others as everyone has different needs and requires different remedies. This is why creating aromatherapy custom blends is so important, especially with mental and cognitive issues.

INHALATION APPLICATIONS

- Diffusion: Aromaball plug-in, car, necklace, ultrasonic
- Room/Linen Spray: essential oils, spring water or plant-based enzymes to help break down protein structures (allergens), activate the brain and body, enhance hydration of the body, nerves, muscles and joints.

TOPICAL APPLICATIONS

- Bath: add essential oils to Epsom or sea salt first, mix, then add to bath water
- Body Spray: essential oils, spring water or plant-based enzymes
- Massage Oil or Lotion: add essential oils and a carrier oil(s)
 - A 10-minute foot massage daily was shown to significantly reduce agitated behavior in dementia patients (Australian Journal of Ageing, 30(3), 159-161, Sept. 2011). I had some clients add in lavender essential oil to the massage oil and get even greater results that lasted longer.
- Foot Soak: add essential oils to Epsom or sea salt first, mix than add to hot or cold water
- Compress: Epsom, sea salt with hot or cold water. Add essential oils to Epsom or sea salt first, mix, then add to water.
- Perfume: combine essential oils with plant based enzymes or coconut oil in a roll-on or spray bottle
- Lotion or Oil: Botanical lotion, almond, coconut, avocado, evening primrose, hemp oil
 - Aloe Gel: soothing, cooling, hydrating
 - Avocado: high in EFA's, A & D, lecithin, potassium, chlorophyll
 - Evening primrose: reduces scar tissue, hydrating, healing to wounds
 - Hemp oil: easily absorbed, high in EFA's
 - Sesame oil: vitamin T, helps decongest liver
- Dry skin brushing: <http://naturalhealthscience.com/skin-brushing-system.php>

Dilution Per Size	.5%	1%	2%	4%
	Pets, Elderly, High Sensitivities	Children, Teens, Mild Sensitivities	Most people and issues	Specific, local area (i.e. neck)
1 oz.	1-2 drops	4-5 drops	8-12 drops	16-20 drops
2 oz.	4-5 drops	8-10 drops	18-22 drops	35-40 drops
4 oz.	8-10 drops	15-18 drops	28-32 drops	40-50 drops
8 oz.	12-15 drops	22-25 drops	45-50 drops	60-65 drops

AROMATHERAPY BRAIN HEALTH RECIPES

Alzheimer Relief Spray

2 oz. Spray Bottle
2 oz. plant-based enzymes or spring water
8 drops Lavender
6 drops Rosemary
5 drops Red Mandarin or Orange
4 drops Peppermint
4 droppers Distress Remedy

Directions: Combine ingredients, shake, label bottle. Use 2-3 times daily and as needed.

Caregiver's Support Spray

.33 oz. roll-on
.33 oz. Liquid Enzymes
5 drop Blood orange
5 drop Cinnamon
2 drop Neroli

Directions: Combine essential oils in roll-on bottle, add in Enzymes, apply cap, shake well, label. Apply 2-3 times daily and as needed for moral support and to give yourself a big hug.

COMPLEMENTARY HOLISTIC HEALTH BRAIN SUPPORT: HEALTHY HABITS = HEALTHY BRAIN

HERBAL SUPPLEMENTATION

PROBIOTICS: Current research shows the power of multi-strain probiotics as it can target a multitude of imbalances from several different angles⁴⁸. Probiotics enhance gut-brain communication, immunity, digestion, autism, mutism and overall body system functions. Most probiotics are gram + (as gram - are the bad guys).

ESSENTIAL FATTY ACIDS (EFA's): Omega's are known as good fats. They feed our brain, nerves, tissues and organs enhancing their function and communication with each other. Bad fats are called trans fats. These are known to cause arteriosclerosis, fatty liver, lymph congestion and inflammation. We need a balance of good EFA's to keep our nerves (communication pathways) like slip n' slides to strengthens neuropathway communications at a cellular level. The more nerves are lubricated, the better, faster or more accurate the messaging signals can be sent and delivered to the appropriate tissues and organs, increasing physical and mental response time. EFA's help enhance memory, focus, alertness, decision making, problem solving, learning capability, get serotonin to the brain and manage blood sugar levels. There are 4 main EFA's or Omega's - 3, 6, 7 & 9.

- 3: EPA, DHA (brain development specific) help with skeletal-muscular, cardiovascular, cholesterol, triglycerides, gastrointestinal inflammation and much

more. The body does not produce omega 3 or 6, but can make omega 9, however it is best to get from foods. DHA – special importance to brain structure, thought process development, problem solving abilities, overall brain and eye development, overall cognitive functions. Flaxseeds and chia seeds are good sources of omega 3.

- 6: GLA work more on hormones, reproductive and endocrine systems as well as nerves, skin, bone and metabolism. Some examples are black current and evening primrose.
- 7: Palmitoleic acid from sea buckthorn and macadamia adds moisture to dryness (hair, skin, nails) and supports cardiovascular, gastrointestinal, weight management and metabolism. It is also known to act as a hormone modulator and help with Type 2 Diabetes.
- 9: Our body can make omega 9 but it is more beneficial to get from our foods and oils such as sunflower, safflower and avocado. It helps with heated imbalances, brain sluggishness, mood swings, anger, stroke deficits, nerve activity, vitamin absorption and cell development.

I personally like to add in a fat emulsifier with my EFA's as people with a compromised intestinal system (i.e., IBS, Crohn's, Colitis, Leaky Gut, Diverticulitis, Diverticulosis, H-pylori, etc.) and no gall bladder, have a harder time breaking down the fats and using its full potency. Having a history of these intestinal issues, when I added in a fat emulsifier with my EFA's, I found I had better overall absorption, skin, brain power and nervous and glandular system health.

ENZYMES: As we age, our bodies start to decrease the amount of enzymes we produce, thus, it is important to add them back in from a plant source. Enzymes as a whole help you digest your food, carbs, sugars, proteins, fats and everything else processed by the gastrointestinal tract. Carbs are broken down into sugars for energy, proteins broken down into amino acids for cellular, skeletal and muscular strength, fats broken down into fatty acids for brain and nerve function.

MINERALS, VITAMINS, AMINO ACIDS: Our “electrical system” juice to keep our circuits working, communicating and responding. Minerals can help with electrolyte balance, organ function and nutrient absorption. When we are deficient in minerals, we may experience dizziness, confusion and kidney issues. Vitamins are fuel, and serve like a key to turn on organs and certain processes to function optimally. Amino acids are the building blocks for protein, cell structure and support a large number of physiological processes.

ADAPTOGENS: I call these my “Stress Busters”. Adaptogens is a category of herbs that help the mind and body adapt and cope to whatever stimuli it is faced with at that given time. It allows you to manage exhaustion, fatigue, anxiety, feeling overwhelmed, hysteria, multi-tasking, PTSD and chaotic situations more rationally, confidently and stable, without becoming overly spastic. They know when to rev you up and when to wind you down, and it can also do this simultaneously on various systems. Some popular adaptogens are ashwaganda, schizandra, eleuthero and rhodiola.

FIBER (degunker): Should be a staple in every diet and meal plan as it helps the body gather up and eliminate toxins. It is used during times of constipation and diarrhea (it knows what you need and when you need it) in addition to enhancing nutrient absorption. There is soluble fiber which is like a sponge to absorb and trap sugars and move them through the GI tract without causing havoc. Insoluble fiber is straw-like and scrubs the intestinal walls of toxic substances to aid in better elimination.

ANTIOXIDANTS: These are our anti-aging defense squad that gobble up free radical damage. They help our cells, organs, tissues and lining from rusting or oxidizing, keeping them as youthful as possible. They aid in sharper mental acuity, memory recall, physical mobility, enhanced immunity and cardiovascular function. They aid in better liver and intestinal detoxification.

PROTEIN: Protein is a huge necessity for structure and function of our body and brain. It comprises our hair, skin, nails, and is needed for tissue repair, bone and muscle development, blood sugar regulation and hormone production. This is what keeps your brain from becoming overloaded, overwhelmed and spacey in the afternoons (around 3pm). Most people think something sugary would give them quick energy, but we should actually be going for protein.

BRAIN SPECIFIC HERBS

There are several brain specific herbs that have supporting scientific research in the power of supporting, nourishing and regenerating brain tissue and function. I'll share a few but encourage you to do some research to find the ones that might serve you best.

- Huperzine, *Huperzia serrata* or club moss: Dr. Daniel Amen of the Amen Brain Clinics turned me on to huperzine many years ago. He helped formulate an herbal product for one of the companies I work with. It is a powerful memory enhancer, neurotransmitter protector and combats cognitive dysfunction.
- Turmeric:
- *Ginkgo biloba*, Gotu Kola (*Centella asiatica*), Bacopa (*Bacopa monniera*): Strengthens brain function, cognitive performance, memory, concentration and attention.
- Others: Green tea, ginger, Korean ginseng and DMAE which can enhance short-term and long-term memory, concentration, and focus; and reduce anxiety and nervousness associated with memory issues.

FLOWER ESSENCES

A flower essence is a liquid preparation created by immersing a flower into water and exposing the preparation to sunlight or heat. This infuses the preparation with healing properties from the life energy and spiritual elements contained in the flower. Flower remedies are made from these flower preparations (essences), and employed to help address, shift, change and influence emotional concerns on a deeper soul and spiritual level (*JennScents Holistic Aromatherapy Comprehensive Guide, 2015*). They differ from essential oils is that there is

no chemical constituent make-up, rather only life force energies. These are the formulas I use often with cognitive challenged clients, as they combine the Flower Essences in a glycerin base instead of alcohol.

- Distress Remedy or Bach Rescue Remedy: Combination of flower essences to address physical and emotional distress, promote patience for the patient and caregiver, calms anxiety, moods, anger, frustration and helps one maintain balance and composure.
- Combination with Calendula, Snapdragon, Impatiens, Vine, Willow, Holly and Tiger Lily can reduce anger, heated emotions and physical issues, calm impatience, irritability, aggressive competitiveness, viper remarks and verbal aggression.
- Combination with Self-Heal, Love-Lies-Bleeding, Chicory, Bleeding Heart, Chrysanthemum, Borage and Star Thistle can help ease the grieving process, reduces sadness, pain, clinging to the past or living in the past, have trouble moving forward, encourages ability to forgive and increases happiness and joy.

FOOD SUPPORT

THE DO'S

- Hydration with Water and Minerals: Minerals help drive water deeper and more effectively into tissues, cells, muscles and organs for optimum hydration. Take your body weight and divide that by 2. This is the least amount of water you should be drinking in a day. Remember, the brain is about 70% water and fat.
- Increased Vegetables and Fruits (organic is best to avoid pesticide toxicity): They are packed full of minerals, vitamins, amino acids and antioxidants to nourish our body and mind. Juicing a few times a week is beneficial too.
- Increased red meat (grass-fed, hormone and antibiotic free), especially with O blood types (*Eat Right For Your Blood Type* book, Dr. Peter D'Adamo).
- Eggs (hormone, antibiotic and cage-free): Egg yolks are high in choline which decreases inflammation in the brain. You can even do a hardboiled egg once a day.
- Nuts, seeds, legumes provide a good source of protein and fats.
- Eat high EFA foods such as avocados, salmon, liver, tuna
- Diet plans: Mediterranean, Anti-inflammatory, pH balance

AVOIDS

- NO or LIMITED SUGAR! When cognition starts to fail and dementia takes over, patients seem to particularly crave sugar, sweets and ice cream. I have known several ladies with Alzheimer's and they all loved ice cream. They literally would eat it all day long if they could. Remember, Alzheimer's has been labeled as "Type 3" Diabetes. Autopsies on people who dies of dementia showed higher amount of sugar levels in their brain. It is the #1 contributor in my opinion to a failing brain.

New science proves why we have sugar addictions⁴⁹. If you want to really understand what sugar does to a body and mind, check out the book Sweet Death by Dr. Hugo Rodier.

- No to limited breads and pasta as they create a congested and “sticky” lymphatic system, which makes it harder to grab and eliminate toxins. A healthy alternative would be spelt, flax and millet pastas and breads.
- No negativity. When you are surrounded by negativity, it brings your energy, immune and cognitive levels down. Stay positive and surround yourself by positive people.

STRESS MANAGEMENT, MOVEMENT & PLAY TIME

- Exercise & Movement (physical and mental): So important for prevention and reaction to brain health, in addition to being a stress reliever. Move your body and Move your mind. It has been shown that exercise enhances overall brain function. Think about incorporating new exercise moves, routines (do a routine, forwards and backwards), walking in a different direction than normal or different route, learning a new sport or exercise and mindful meditations. A study showed that aerobic exercise improves executive control processes for older women at high risk of cognitive decline⁵⁰. Make sure if you ride a bike, skate, rollerblade or other extreme outdoor sport, you wear a helmet.
 - Brain exercises! Brain activities can enhance your intelligence, feed your brain, change your beliefs about yourself and improve your retrieval system through practice, association and memorization. A brain in motion stays in motion.
- Reduce and Manage Stress: Stress has been shown to decrease and inhibit cognitive function⁵¹. Being socially active or in a network of supportive friends has been linked to higher cognitive functions in elderly persons⁵². It can also lead to health emotional and reactive states.
- Sleep! A proven fact that sleep deprivation causes a lapse in judgement, poor mental faculties and increased stress reactions. In a perfect world, it is best to be in bed no later than 10:00pm, so you can relax, fall asleep and enter in a REM sleep cycle by 11:00pm. Your second adrenaline kicks in at 11:00pm, not for you to stay awake and party all night, but to provide your body energy to do “maintenance” on your detoxifying organs while you sleep. You have a 24-hour circadian rhythm clock that provides maintenance on a different organ or body system, every 2 hours. At night, the gall bladder, liver, lungs and colon are being “serviced”. Sleep tight and sweet dreams.
- Have fun! Laugh often! Find a hobby! Do something you enjoy and love because you want to, not because you have to. Challenge yourself daily. Begin each day with positive affirmations. Dedicate and commit at least 10-15 minutes a day for “ME” time. ME stands for mental energy. You must keep your mind in the game, or your body will not follow.

- Make Time for Aromatherapy – my personal favorite time of the day! Diffuse an essential oil or essential oil blend daily. Make a body spray, perfume, deodorant, linen spray, lotion or bath salt. Anyway, you smell it, get the essential oils out of the bottle and into the air. The power of smell can do wonders for the brain.

OTHER THERAPIES

- Acupuncture
- Craniosacral
- Massage Therapy
- Reflexology

ESSENTIAL OIL PROPERTY GLOSSARY

All 100% pure essential oils are antibacterial and antioxidant.

- Antidepressant: bergamot, cedar, neroli, grapefruit
- Antifungal: patchouli, sandalwood, cedar, thyme
- Anti-inflammatory: frankincense, myrrh, yarrow, turmeric
- Antioxidants: all essential oils
- Anti-parasitic: cinnamon, clove, ginger, rosemary, sage, tea tree
- Antispasmodic: lavender, frankincense, orange, peppermint, vetiver
- Analgesic (pain relief): lavender, tea tree, ginger, clove, marjoram
- Cephalic (brain circulation): rosemary, black pepper, spearmint, lemon, lavender
- Cytophylactic (encourages cell growth and regeneration): frankincense, helichrysum, patchouli
- Diuretic (promotes fluid elimination, edema): cypress, geranium, juniper, grapefruit
- Febrifuge (fever/heat reducing): chamomile, peppermint, lemon, lime, palmarosa
- Nervine (nerve tonic, pain, tremors): lavender, clary sage, jasmine, basil, rosemary
- Relaxant: lavender, chamomile, ylang ylang, orange, lemongrass
- Sedative: chamomiles, jasmine, lavender
- Stimulant: rosemary, eucalyptus, peppermint, cinnamon
- Vasoconstrictive (constricts blood vessels: chamomiles, lavender, marjoram, peppermint
- Vasodilative (dilates blood vessels): eucalyptus, rosemary, sage, thyme
- Vermifuge: expels worms and parasites

REFERENCE & RESOURCES

JennScents Level I & II Holistic Aromatherapy Certification Courses, www.JennScents.com

JennScents Holistic Aromatherapy Comprehensive Guide, 2015, www.JennScents.com

www.alzheimersfamily.org

www.naha.org

<http://www.nursingassistantcentral.com/blog/2008/100-fascinating-facts-you-never-knew-about-the-human-brain/>

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17. <https://www.ncbi.nlm.nih.gov/pubmed/27516115> <https://www.ncbi.nlm.nih.gov/pubmed/27344237>
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