

Depression

Dr. John Bergman

Depression

- A state of low mood and aversion to activity that can affect a person's thoughts, behavior, feelings and sense of well-being



History of Depression

- Ancient Greece, disease was thought due to an imbalance in the four basic bodily fluids, or *humors*.
 - Ancient Greek *melas*, "black", and *kholé*, "bile", melancholia
- Hippocrates: "fears and despondencies, if they last a long time" as being symptomatic of the ailment"
- 17th century Robert Burton's book, *The Anatomy of Melancholy*
- melancholy helped by, a healthy diet, sufficient sleep, music, and "meaningful work", along with talking about the problem with a friend
- 1950 depression - **chemical imbalance** in neurotransmitters in the brain
- 1960s and 70s, manic-depression or bipolar disorder
- 1965- Joseph Schildkraut develop the **Serotonin hypothesis**
- 1980 *Major depressive disorder* was added to DSM-III in 1980

Depressive Mood Disorders

- Major Depressive Disorder (Clinical Depression)
- Bipolar disorder
- Anxiety Disorder
- Dysthymia
- Seasonal Affective disorder
- Borderline Personality Disorder
- Posttraumatic Stress Disorder
- Atypical Depression
- Melancholic depression
- Psychotic Major depression
- Catatonic Depression
- Postpartum Depression



Depression Statistics

- **350 million** people worldwide who suffer from depression
- Depression affects **16 million** Americans
- **1 in 20** Americans are depressed
- Estimated that **50% of Americans have major depression**
- Women are **70%** more likely to be depressed than men
- **20-26%** percent of all women will be diagnosed with major depression
- **1 in 33** children and **1 in 8** adolescents have clinical depression
- **Major Depressive Disorder** is the leading cause of disability in the U.S.
- Estimated annual cost of depression in the U.S: **\$80 billion**
- Depression accounts for **\$12 billion** in lost workdays each year
- Decreased productivity caused by depression costs **\$11 billion** per year

Depression and Suicide

- **Depression causes two-thirds of all suicides in the U.S.**
- For every 2 homicides there are 3 suicides
- Suicide is the leading cause of death among 15 to 24 year olds
- Suicide is the fourth leading cause of death among 10-14 year olds
- Young males ages 15-



at risk for suicide

Depression Occurring with illnesses

- 25% of cancer patients
- 27% of post-stroke patients
- 1 in 3 heart attack survivors
- 1 in 3 HIV patients
- 50% of Parkinson's disease patients
- 75% of eating disorder patients
- 27% of patients with substance abuse disorders
- 27% of people with diabetes



Symptoms of Depression

A depressed person can feel:

- Sad
- Anxious
- Empty
- Hopeless
- Helpless
- Worthless
- Guilty
- Irritable
- Ashamed
- restless

Effects of Depression

- Loss of interest in pleasurable activities
- Loss of appetite and weight loss
- Overeating and weight gain
- insomnia or oversleeping
- Fatigue
- Chronic pain
- Difficulty concentrating
- Memory loss
- Suicidal thoughts
- 4 times more likely to develop a heart attack

The Cause of Depression

The Biopsychosocial Model

- Depression is caused by a combination of biological, psychological, and social factors



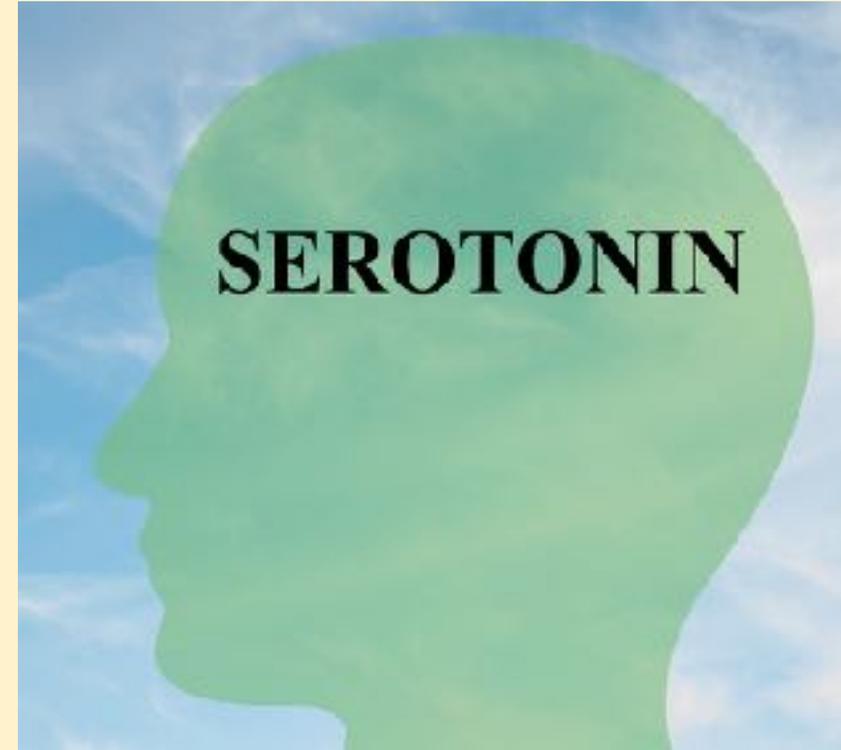
Psychological and Social Factors for Depression

- Bereavement
- Neglect
- Mental abuse
- Sexual abuse
- Childbirth
- Menopause
- Financial difficulties
- Job problems
- A medical diagnosis
- Bullying
- Social isolation
- Relationship troubles
- Catastrophic injury



Biological Factors

- Genetic Factors
- Circadian Rhythm
- The Monoamine Hypothesis



Genetic Factors

- 2003- Study that found a gene-environment interaction depending on an allelic variation of the serotonin-transporter-linked promoter region
- 2007- 11 replications of this study
and the largest studies were **Negative**
- 2009- 20 replicative studies are all **Negative**



The Largest Mega-Analysis of Genome-Wide association for Major Depressive Disorder

- involving the genetic analysis of over **127,000 people**

“Prior genome-wide association studies (GWAS) of major depressive disorder (MDD) have met with limited success.”

“Although this is the largest genome-wide analysis of MDD yet conducted, its high prevalence means that the sample is still underpowered to detect genetic effects typical for complex traits. Therefore, **we were unable to identify robust and replicable findings.**”

(Journal of Molecular Psychiatry, 2013)

Circadian Rhythm

- Depression may be related to abnormalities in the circadian rhythm
- REM (Rapid Eye Movement) sleep requires decreased serotonin levels

Light

- Is the primary cue for the Circadian Rhythm
- Light deprivation is related to decreased activity in the serotonergic system and abnormalities in the sleep cycle
- Light therapy targets the serotonergic system and has a regulatory effect on serotonin levels.
- Light therapy can be used to treat sleep disorders and depressive disorders

The Monoamine Hypothesis of Depression (The Serotonin Hypothesis)

Monoamines are neurotransmitters including:

- Serotonin: feelings of well-being and happiness
- Dopamine: reward-motivated behavior and pleasure
- Epinephrine (Adrenaline): response to stress and fear
- Norepinephrine (noradrenaline): response to stress (fight or flight)

The Hypothesis

- The deficit of certain neurotransmitters is responsible for depression
“Serotonin may help to regulate other neurotransmitter systems and decreased serotonin activity may permit these systems to act in unusual and erratic ways”

(Archives of General Psychiatry)

Antidepressant Medication



- Selective Serotonin Reuptake Inhibitors (SSRIs)
- Monoamine Oxidase Inhibitors (MAOIs)
- Direct-to-consumer advertising (DTCA) campaigns have largely revolved around the **claim** that SSRIs correct a “**chemical imbalance**” caused by lack of serotonin.
- **SSRIs are now among the best-selling drugs in medical practice**
- The FDA monitors the advertisements once they are in print or on the air
- Misleading content is frequently found in various DTCA campaigns

Pharmaceutical Advertisements

“**Celex** helps to restore the brain’s chemical balance by increasing the supply of a **chemical messenger** in the brain called serotonin.”

“When you’re clinically depressed, one thing that can happen is the **level of serotonin** (a chemical in your body) may drop. To help bring serotonin levels closer to normal, the medicine doctors now prescribe most often is **Prozac**.”



Pharmaceutical Advertisements

“Chronic anxiety can be overwhelming. But it can also be overcome...

Paxil, the most prescribed medication of its kind for generalized anxiety, works to correct the **chemical imbalance** believed to cause the disorder.”

“While the cause is unknown, depression may be related to an **imbalance of natural chemicals** between nerve cells in the brain.

Prescription **Zoloft** works to correct this imbalance. You just shouldn't have to feel this way



The Business of Depression

- The Psychiatric industry is a **\$330 Billion industry**
 - Antidepressants are the most consumed class of drugs in the U.S.
 - Averaging about **270 million prescriptions per year**
 - The U.S. antidepressant market peaked at **\$12 billion in 2008**
- Antidepressant use in the US among ages 12 and older increased by **400%** between 1994-2008
 - **1 in 10 Americans** is taking an Antidepressant
 - **1 in 4** among women aged **50 to 64** are taking Antidepressants

Effects of Antidepressants

- Increased risk of developing mania or bipolar disorder
- If taken during pregnancy: **87% increased risk of autism**
- May double your risk of bone fractures
- 30% increased risk of spinal fractures
- **45% more likely to suffer a fatal stroke**
- 32% increased risk of heart disease
- 2-3 times increased risk of diabetes
- **Doubles your risk of suicide**
- Linked to violent behavior, murder, suicide and more

Problems with the Monoamine Hypothesis

The American Psychiatric Press Textbook of Clinical Psychiatry

- Addresses serotonin deficiency as an **unconfirmed hypothesis**, stating, “Additional experience has not confirmed the monoamine depletion hypothesis”

“The hypothesis has enjoyed considerable support, since it attempts to provide a pathophysiologic explanation of the actions of antidepressants. However, in its original form it is **clearly inadequate**, as it does not provide a complete explanation for the actions of antidepressants, and the **pathophysiology of depression itself remains unknown.**”

(Journal of Clinical Psychiatry)

Problems with the Monoamine Hypothesis

“A serotonin deficiency for depression has not been found”

Psychiatrist Joseph Glenmullen, Harvard Medical School

“So far, there is no clear and convincing evidence that monoamine deficiency accounts for depression, that is, there is no “real” monoamine deficit”

Psychiatrist Stephen M. Stahl (Essential Psychopharmacology, 2000)

“Given the ubiquity of a neurotransmitter such as serotonin and the multiplicity of its function, it is almost as meaningless to implicate it in depression as it is to implicate blood”

Science writer John Horgan (The Undiscovered Mind, 1998)

Problems with the Monoamine Hypothesis

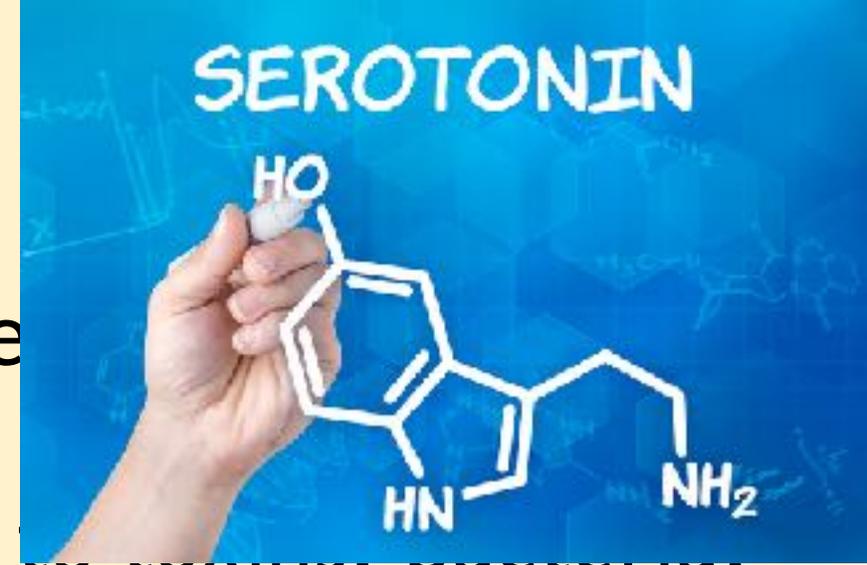
“I spent the first several years of my career doing full-time research on brain serotonin metabolism, but never saw any convincing evidence that any psychiatric disorder, including depression, results from a deficiency of brain serotonin. **In fact, we cannot measure brain serotonin levels in living human beings so there is no way to test this theory.** Some neuroscientists would question whether the theory is even viable, since the brain does not function in this way, as a hydraulic system.”

Stanford Psychiatrist David Burns

Winner of the A.E. Bennett Award given by the Society for Biological Psychiatry, for his research on Serotonin Metabolism

Serotonin

- Biochemically derived from tryptophan
- 90% of the body's total serotonin is located in enterochromaffin cells in the GI tract
- Enterochromaffin cells are very sensitive to toxins, bacteria, viruses and especially sensitive to irradiation and cancer chemotherapy



“Little is known about the specific contribution of serotonin to the neurobiology of emotion and mood in healthy people.”

(Journal of Psychiatry and Neuroscience)

Functions of Serotonin

- Regulates intestinal movements
- Regulates mood, appetite, and sleep
- Plays a role in cognitive function including memory and learning
- Serves as a vasoconstrictor and helps regulate homeostasis and blood clotting
- Is a growth factor for certain types of cell and may have a role in wound healing
- Regulates bone mass
- Affects organ development
- Regulates Cardiovascular growth factor
- It is thought to be a contributor to feelings of well-being and happiness

The Hippocampus and Depression

- Involved in behavioral reactions and mood disorders
- Shrinkage and atrophy of the Hippocampus are associated with Depression

Contributing factors to Hippocampal Shrinkage

- The hippocampus shrinks in late adulthood
- Decreased in blood flow to your brain (*Blood pressure drugs*)
- the accumulation of environmental toxins in your brain (*Vaccinations*)
- Sedentary Lifestyle

“The available evidence suggests that the hippocampus plays an important role in the pathophysiology of Depression and Bipolar Disorder”
(Journal of Behavioral Pharmacology)

Medications known to Cause Depression

- Benzodiazepines
- Beta-blockers, methyldopa and other blood pressure medication
- Corticosteroids and Contraceptives
- Sedatives
- Opioids and other pain killers
- Amphetamines
- Antidepressants



Glucocorticoid Therapy and Depression

- Used to treat asthma, allergic reactions, inflammation, and autoimmune disorders
- Drugs Include: cortisone, hydrocortisone and prednisone
- Glucocorticoids act on the hippocampus, amygdala, and frontal lobes

“Glucocorticoids increase the risk of suicidal behavior and neuropsychiatric disorders.

(American Journal of Psychiatry, 2012)

Sugar and Depression

- Sugar (particularly fructose) suppresses a key growth hormone called BDNF (brain derived neurotrophic factor)
- BDNF promotes healthy brain neurons and plays a vital role in memory
- **BDNF levels are critically low in people with depression**

British Journal of Psychiatry

- a diet which contained a lot of processed foods had a **58% increased risk for depression**

MSG and Depression

- Researchers have also discovered that most people with major depressive disease (MDD) have higher levels of the neurotransmitter **glutamate** in their spinal fluid (CSF) and blood plasma.
- Free glutamate, that is, existing outside the neurons, is very toxic to brain connections and brain cells themselves -- mainly by a process called **Excitotoxicity**

Some of the Many names of MSG (monosodium glutamate)

- hydrolyzed proteins
- calcium or sodium caseinate
- soy protein isolate, vegetable protein concentrate or isolate

The 5 Keys to Health and Healing



Proper nerve supply



Regular Exercise



Proper Nutrition



Sufficient Rest



Prayer and Meditation

The Nervous System

- The nervous system controls **every function of the body**
- Neurological imbalance leads to disruption of endocrine function
- Chiropractic care is essential to stimulate the nervous system to promote healing and normal function

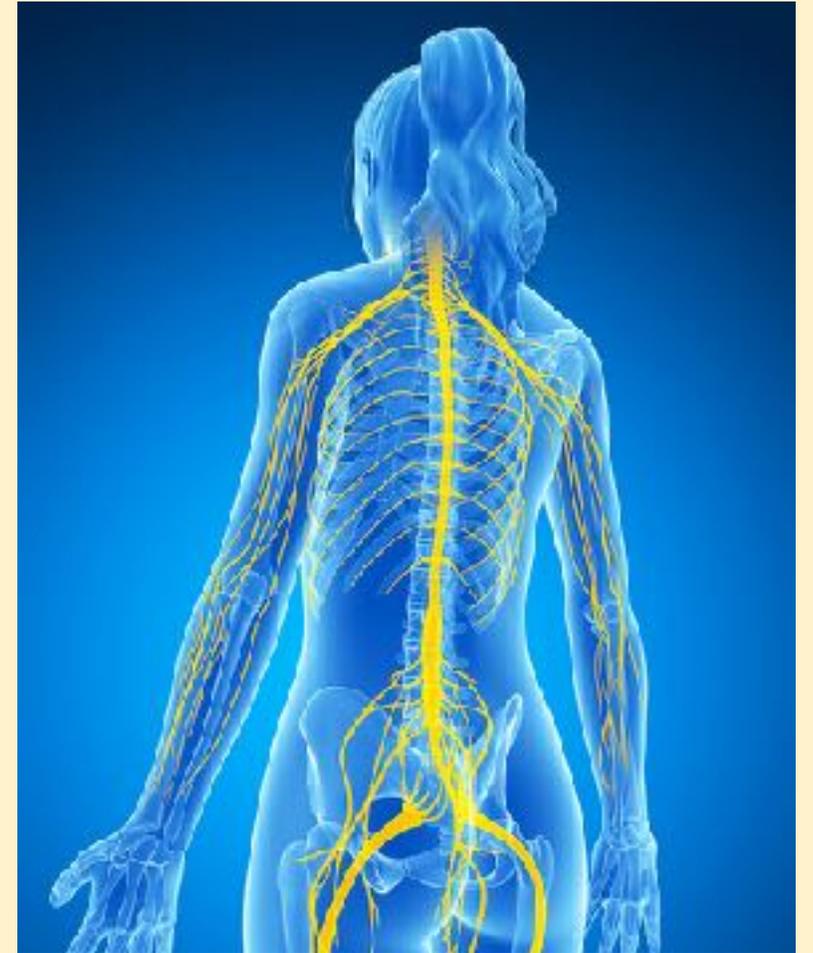
“76% of those patients reported a mental/emotional improvement, as well as positive changes in stress and life enjoyment over a period of several months following the chiropractic care.”

(Journal of Upper Cervical Chiropractic Research, 2013)

The Nervous System

Benefits of Chiropractic Care for Depression

- Alleviates pain
- Boosts Productivity
- Improves quality of life
- Improves Cognitive Function
- Reduces Dependency on Medications
- Improves quality of Sleep
- Reduces stress
- Boosts your Immunity



According to:

The Spine Journal

Journal of Vertebral Subluxation Research

Journal of Manipulative and Physiological

Therapeutics

Sympathetic Nervous System Vs. Antidepressant

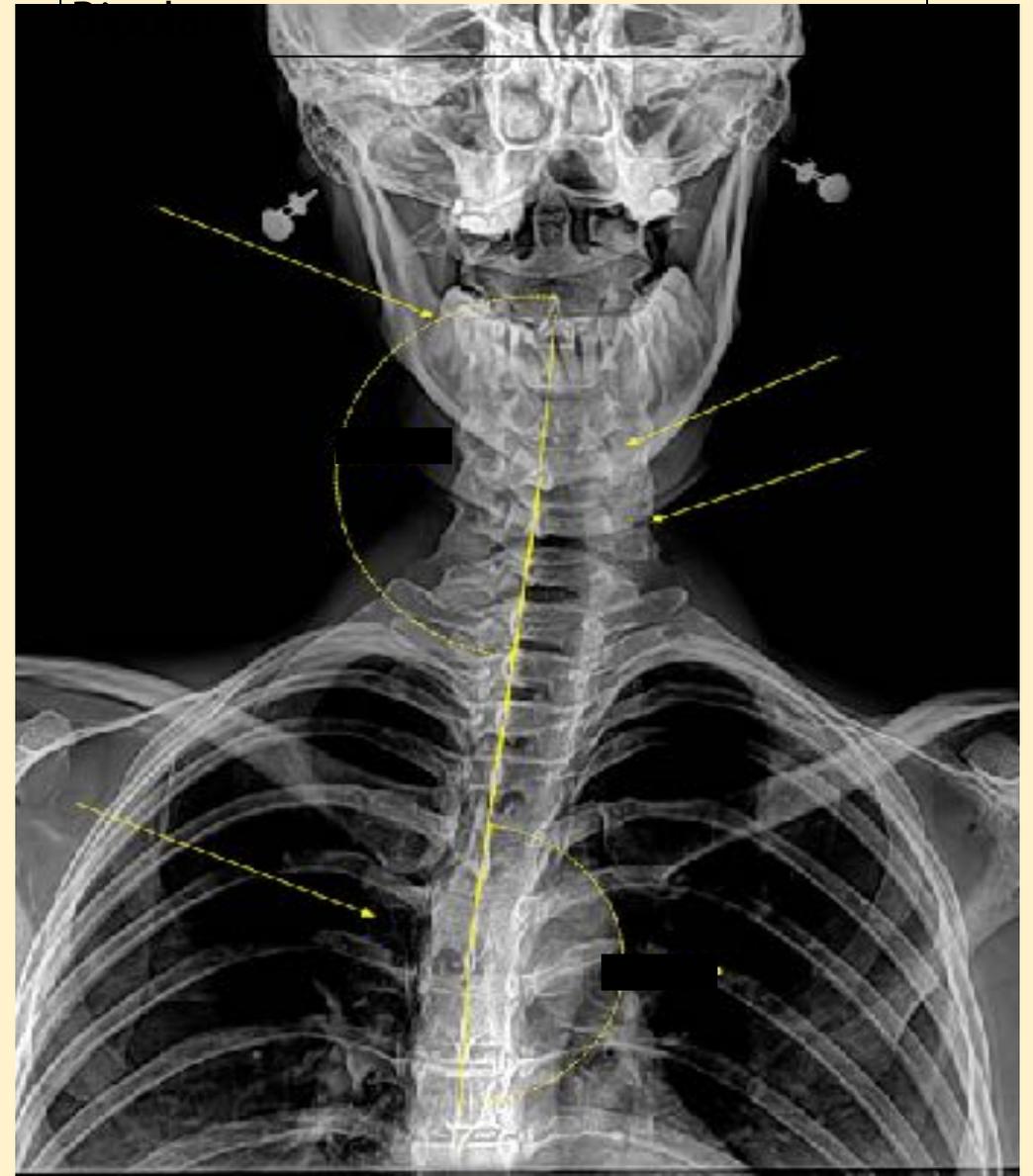


Altered structure causes Altered Function of the Brain

Jane 52 yo just recovered from



Kay 44 yo 7 Rx's for Dx of 7 years



Exercise and Brain Plasticity

- Exercise training increases size of hippocampus and improves memory
- Aerobic exercise training is effective at **reversing hippocampal volume** loss in late adulthood
- increases blood flow to your brain
- increases oxygen supply to your brain
- encourages a more vigorous **release of accumulated toxins** through better blood circulation
- Increased blood flow increases nutrients necessary to keep your brain cells

“Moderate exercise can reverse normal brain shrinkage by two percent, effectively reversing age-related hippocampal degeneration by one to two years”

Exercise and Brain Plasticity

*"We demonstrate that loss of hippocampal volume in late adulthood is not inevitable and can be reversed with **moderate-intensity exercise.**"*

"There is a striking ability of environmental enrichment and physical exercise to empower adult brain plasticity."

(Physiology Review)



Exercise and Brain Plasticity

"What we're finding in the research on physical exercise is that **exercise is at least as good as antidepressants** for helping people who are depressed... physical exercise changes the level of serotonin in your brain. And it increases your endorphin levels, your "feel good hormones."

“And also—and these are amazing studies—**exercise can increase the number of cells in your brain, in the region of the brain called the hippocampus.** These studies were first done on animals, and they're very important because sometimes in depression, there are fewer of those cells in the hippocampus.”

Dr. James S. Gordon, MD,

World-renowned expert in using
Mind-Body medicine to heal depression

Proper Nutrition

Vitamin D

- Helps produce serotonin in the brain
- Activated Vitamin D receptors increase nerve growth in your brain
- The combination of Vitamin D, Tryptophan and Omega-3 fats can naturally elevate concentration of brain serotonin without side effects
- People with Low vitamin D levels are 11 times more prone to depression

Omega 3

- Animal based Omega 3: Sardines, Mackerel, and Anchovies
- The single most important nutrient for optimal brain function
- Low DHA levels have been linked to depression, memory loss, Schizophrenia and Alzheimer's disease

Optimize Your Gut Flora

- 90% of serotonin is produced in the digestive system
- The **Probiotic Lactobacillus Rhamnosus** has been shown to lower the stress hormone corticosterone, resulting in reduced anxiety and depression
- **Bifidobacterium Longum** has been shown to normalize anxiety-like behavior
- Eliminate processed foods, especially sugar
- Organic plant based diet
- Healthy fats such as coconut oil
- Fermented Vegetables
- Probiotic Supplements



Sleep

- Proper REM sleep plays a very important role in Depression
- Any disruption of the **Circadian Rhythm** can result in loss of sleep which can develop into depression
- **Light** is your body's primary cue
- Limit your exposure to artificial (Blue) light
- Expose your body to as much natural sunlight as you can
- Take the proper steps to achieve REM sleep



Meditation

- Meditation can alter the physical structure of the brain
- This includes any repetitive activity that requires higher cognitive function
- The structure of the brain can change in response to repeated practice

Researchers at Harvard, Yale, and the M.I.T.

“Our data suggest that meditation practice can promote cortical plasticity in adults in areas important for cognitive and emotional processing and well-being.”



Balancing your Emotions

The Demartini Breakthrough Experience

- An extremely effective technique for balancing your emotions
- A logical process of balancing negatively charged emotions and emotionally charged events
- **Event + Perception = Outcome (Emotional Response)**
- By changing your perception of an event you can change the outcome which is your emotional response

Emotional Freedom Technique (EFT)

- A form of psychological acupressure
- This technique can be performed by an EFT practitioner
- You can learn to do this technique effectively on your own

Neurolinguistic Programming

- A system of alternative therapy intended to help model and change a person's pattern of mental and emotional behavior
- Sometimes referred to as **Incantations**
- Use your body and your voice with enough intensity and repetition to program your mind

The 4 keys to Neurolinguistic Programming are:

- Body Posture
- Intonation
- Breathing
- Volume

The “I AM” Exercise

-An exercise using Neurolinguistic Programming that starts with “I AM” followed by a positive and powerful adjective.

- Enthusiastic
- Fulfilled
- Compassionate
- Fascinated
- Friendly
- Interested
- Invigorated
- Loving
- Passionate
- Vibrant
- Warm
- Delighted
- Serene
- Blissful
- Glad
- Empowered
- Ecstatic
- Optimistic
- Trusting
- Proud
- Amazed
- Tickled
- Radiant
- Rejuvenated
- Thrilled
- Surprised
- Satisfied

“I AM excited to take on the tasks of the day. I AM strong, intelligent, beautiful, and healthy. An abundance of wealth and love are constantly flowing to me.”

The 5 Keys to Health and Healing



Proper nerve supply



Regular Exercise



Proper Nutrition



Sufficient Rest



Prayer and Meditation

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