Mentoring the Mentor

Stuart White, DC, DACBN, CCN
Whole Health Associates
1406 Vermont
Houston, Texas 77006
713/522-6336
stuartwhite@wholehealthassoc.com
www.wholehealthassoc.com
www.doctorofthefuture.org

Mentor goals:

- To declare what is possible and establish a commitment to that possibility
- Address personal and professional barriers limiting the ability to serve
- Evolution of vision/mission/ethics that drive success
- Create immediate action steps to apply learning and growth
- Construct the round table of applied trophologists

2

Mentoring the mentor:

- Who are the mentors? – Practitioners
- Who are we mentoring? – Patients and GAP
- What's the purpose? – Optimized life
- How does it work? – Whatever you learn you teach someone else (anyone else)
- Who's is included? – Self selection, you pick yourself

3

Mentoring the mentor:

- Each participant attends monthly teleconferences (1 hour in duration, 4th Thursday of month) creating a round table discussion/exploration of the dynamics and details of a nutrition-based wholistic practice
- Each participant chooses a colleague in his/her world to convey the notes and information – no information squandering
- Issues/problems/questions are considered a learning process for everyone, although individual's remain anonymous
- All questions, comments, case studies to be directed through email to SP rep who will compile and include in next teleconference (must be submitted 10 days prior)

4

Functional Medicine

The work of your heart, the work of taking time to listen, to help, is also your gift to the whole of the world

Jack Kornfield

5

Seminar Statement:

- The ideas and views expressed in this seminar are the compiled thoughts and understanding to date of Dr. Stuart White
- He alone proposes these ideas and approaches as humanitarian methods to increase self understanding and ease suffering, while promoting remarkable states of wellness
- These ideas are meant to provide a starting place and explore a broad review of many hypotheses
- It is the goal of this seminar to accomplish an algorhythm to enter into supporting additive tendency, and thus to be a starting place for concerned practitioners
- To whatever degree this goal is achieved it will alter permanently the insight into the challenge and the way out of addictive suffering
- This will then more formally start an organized approach to supporting addiction
- This start will never finish, but only elaborate itself …

6

Fair notice:

- Because the considerations following involve a continuum each participant will find relatedness with the material as it unfolds -0 this will give rise to feeling the flaw in ourselves and increasing a sense of humility
- While preparing this material I found this relatedness humbling and reflective
- This material is for advanced practitioners to increase their awareness and therefore the empathy with which we approach our patients
- Each of us is perfect and unique – our strengths and weaknesses come together to create individual talent
- Looking at the parts can be awkward without remembering the whole
- Let the empathy increase!

7

Whenever needed …

We all have reservoirs of life to draw upon,

of which we do not dream.

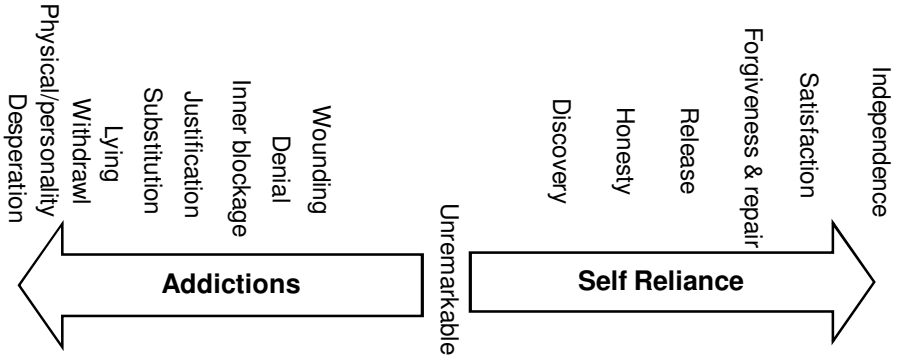
William James

How nerves get addicted:

- When drugs cross the blood/brain barrier they bind to receptors and trick a pleasurable response called a high or low
- Tolerance occurs after repeated exposures when the receptors become adapted to the new condition of having the drug around
- Drugs that mimic normal neurotransmitters replace the body's normal production and the reduction in supplies results in withdrawl symptoms and dependency
- Dependence is also born of psychological needs, beyond simple brain chemistry
- Current understanding is that whole areas of the brain are tied to pleasure and reward
- Genetic predisposition may explain some susceptibility to addictive processes

9

Addiction Continuum:



negative - Experience of cause and effect - positive

Learning / Growing / Loving / Serving

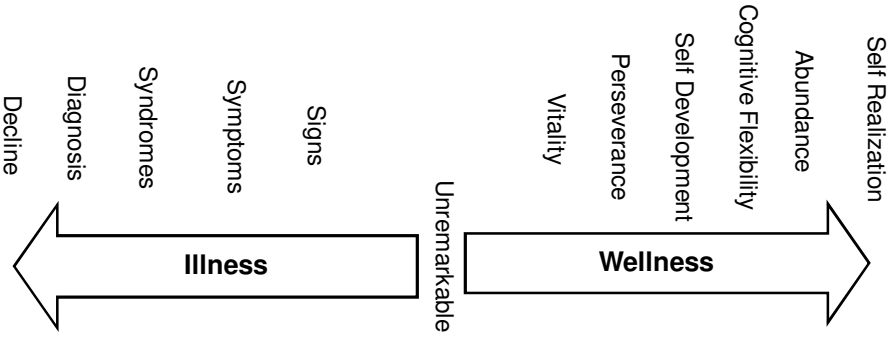
10

Continuum of addiction

- All individuals exist on the continuum of addiction
- Enough stress and overwhelming the brain's metabolism will result in efforts to satisfy imbalances
- Some are prone to these imbalances and so move to these cravings and dependencies sooner, others later
- How do we assist individuals to the greatest discovery of self and source?
- Ultimately all imbalance activates the background separation issues in each person

11

Life Continuum:



negative - Experience of cause and effect - positive

Learning / Growing / Loving / Serving

12

Grow daily …

I am grateful for whatever helps my spirit grow.

Florida Calloway

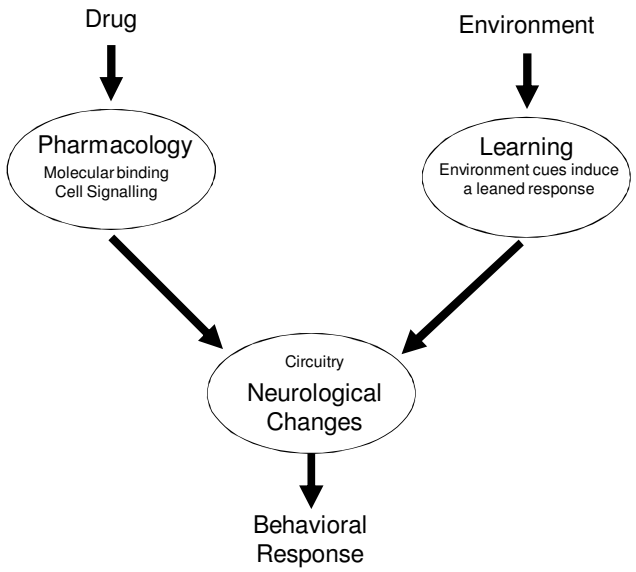
Addiction and beyond

- An addiction to a drug is not just associated with the **pharmacology** of the drug, the **environmental regulation** of the drug-induced changes is a critical factor in the development of addiction.

Addiction and the Environment

- Downregulation can be classically conditioned. If a behavior consistently occurs in the same environment or contingently with a particular cue, the brain will adjust to the presence of the conditioned cues by decreasing the number of available receptors in the absence of the behavior. It is thought that many drug overdoses are not the result of a user taking a higher dose than is typical, but rather that the user is administering the same dose in a new environment

O'Brien, C.P., Childress, A.R., McLellan, A.T., et al. (1992). Classical conditioning in drug-dependent humans. *Annals of the New York Academy of Sciences*, 654, 400-415.



Biochemistry of mood alteration

- Stress can deplete neurotransmitter stores faster than they can be created resulting in deficiency – too much stress, breaking the horse's back
- Dietary imbalance can reduce the ability to produce neurotransmitter stores and result in depletion – unable to keep up with demand
- Our role is to systematically support the individual to a more abundant state biochemically and thus to a greater degree of choice and autonomy – less at the mercy of the biochemical mood

17

White Reward

1

Daxitrol: A Novel Approach for Controlling Cravings

David Marc, B.Sc.[a], & Kelly Olson Ph.D[a].
[a] NeuroScience, Inc., 375 200th St., Dassels, WI 54020, United States
david.marc@neuroscience.com

Abstract

Cravings are defined as an intense drive or desire directed towards food, drugs, gambling, and other stimuli. The pleasure/reward and motivational pathways associated with cravings involve multiple neurotransmitters including dopamine, glutamate, serotonin, acetylcholine, and various peptides. These neurotransmitters also serve as therapeutic targets to modulate the pleasure/reward pathway. Daxitrol is a novel product that contains L-3,4-dihydroxyphenylalanine (L-DOPA), epigallocarechin gallate (EGCG), N-acetylcysteine (NAC), 5-hydroxytryptophan (5-HTP), L-phenylalanine, forskolin, and Imperatine A (IlupA) to manage cravings and enhance self-control. This overview will present the neurological pathways that underlie cravings and propose the use of Daxitrol to ameliorate cravings. Information will be provided that discusses how Daxitrol targets dopamine, glutamate, serotonin, acetylcholine, and the peptide cholecystokinin (CCK) to help decrease cravings and impulsivity.

Introduction

Cravings are defined as an intense drive or desire for a variety of stimuli (Pelchat, 2002). Commonly, cravings are directed towards foods or drugs and have been reported to occur in approximately 52-97% of individuals (Gendall et al., 1997; Christensen & Pettijohn, 2001). Cravings can also be directed towards behaviors that elicit a desire for intangible stimuli as observed in gambling (Tavares et al., 2005). Interestingly, the same biochemical pathways and neurological circuits are implicated in cravings for food, drugs, and gambling (Pelchat, 2002). Daxitrol is a product that targets these neurological circuits by supporting specific neurotransmitters involved in the pleasure/reward pathway and therefore can decrease cravings and impulsivity.

Food cravings are of interest because of their overwhelming prevalence and the significant impact on weight and health. However, there is an evolutionary concept that suggests the purpose of food cravings is to promote greater dietary variety. Evidence to support this concept has shown that adults who consumed a single food diet experienced increased food cravings as compared to a baseline diet with greater diversity (Pelchat & Schaefer, 2000). However, food cravings tend to be directed towards highly-palatable, calorie-dense foods such as chocolate, candy, and pizza (Weingarten & Elston, 1991). Consequently, cravings can contribute to weight gain (Krebs-Smith et al., 1987; Martin et al., 2008).

Drug and food cravings involve activation of similar biochemical pathways leading to behaviors related to an impulsive drive to consume a particular substance. Interestingly, programs to reduce substance use often utilize sweets as a means to reduce drug cravings (Pelchat, 2002). The ingestion of sweets has shown to reduce cravings for opiates, alcohol, and cigarettes (Mamlin et al., 1989). Although cravings decrease with the intake of sweets, the likelihood of weight issues increases due to their high caloric value (Morales et al., 1989).

Whether cravings are directed towards foods or drugs, it is related to the lack of impulse control (Pelchat, 2002). Similarly, impulsivity is observed with cravings toward other stimuli such as gambling (Iancu et al., 2008). Because cravings are related to the pursuit of pleasure and reward and the impulsive need for a specific stimulus, cravings share similar biological systems independent of the stimulus being craved (Pelchat, 2002). Therefore, a product, such as Daxitrol, that targets the biochemical pathways involved with pleasure, reward, and impulsivity may reduce cravings for a variety of stimuli.

Although the biochemical mechanisms of cravings are not fully understood, research strongly suggests the involvement of dopaminergic brain nuclei in regulating pleasure and reward (Christensen & Pettijohn, 2001; Heinz et al., 2009). In addition, research supports the involvement of other biochemical mechanics, such as serotonin, glutamate, acetylcholine, and various peptides in behaviors related to cravings (Heinz et al., 2009). Novel strategies are being developed to control cravings by targeting these specific biochemical pathways. This overview introduces and explains the neurological pathways involved in cravings and provide evidence for the use of the novel product, Daxitrol, to manage these cravings.

The Biology of Cravings

Various neurological systems contribute to the behavioral drive for pleasure and reward that can lead to the onset of cravings. Of primary focus are the neurotransmitters dopamine, glutamate, acetylcholine, and serotonin as they have been shown to be involved in these processes (Giacoccioppo, 1999; Clay et al.,

*These statements have not been evaluated by the Food and Drug Administration.
This product is not intended to diagnose, treat, cure, or prevent any disease.

©NeuroScience, Inc. January, 2010

18

Cravings

- Cravings are defined as an intense drive or desire for a variety of stimuli (Pelchat, 2002)
- Cravings may be directed towards foods or drugs and have been reported to occur in 52-97% of people
- Cravings can also be directed towards behaviors that elicit an intangible stimuli like gambling
- The same biochemical and neurological pathways are implicated for cravings in food, drugs and gambling
- Although biochemical mechanisms of cravings are not fully understood, research does suggest the involvement of dopaminergic brain nuclei in regulating pleasure and reward

19

Target pleasure and reward

- Various neurological systems contribute to the behavioral drive for pleasure and reward – this can lead to the onset of craving
- Of primary focus are the neurotransmitter pathways involving dopamine, glutamate, acetylcholine and serotonin (Ciccocioppo, 1999)
- In addition a peptide called cholecystokinin (CCK) can signal satiety and a state of fullness, and reduces drug cravings by altering specific actions in the central nervous system
- Recent evidence suggests that overeating may be compensatory for a reward deficiency, resulting from hypoactive dopaminergic activity in the brain (Reinholz at al, 2008)

20

Target pleasure and reward

- Some conditions, genetic predisposition and overstimulation resulting in downregulation of dopaminergic stores can lead to deficiency and subsequent 'chase the reward' behaviors
- Dopamine is vital to reward and motivation
- The brain regions associated with cravings include the Nucleus Accumbens (NAc), Ventral Tegmental Area (VTA), and neostriatum (Clay at al, 2008)
- Drugs such as opiods, alcohol, cocaine, and amphetamines elicit intense dopaminergic pleasure signals in the brain
- Gambling and risk taking can also increase dopaminergic pathways activity (Iancu at al, 2008)
- Food also stimulates dopaminergic pleasure centers (Epstein & Leddy, 2006)

21

Target pleasure and reward

- Upon initial exposure to a rewarding stimulus there is an increase in dopaminergic signaling from the VTA to the NAc
- In addition the NAc has dense acetylcholine projections that can mediate dopamine release
- Because of this relationship between acetylcholine and dopamine research suggests brains acetylcholine can prevent reward seeking behaviors and cravings
- The brain learns association between a environmental cues and cravings
- This occurs because dopamine activity in the NAc promotes glutamate signaling to the prefrontal cortex which learns how to behave to obtain a pleasurable response

22

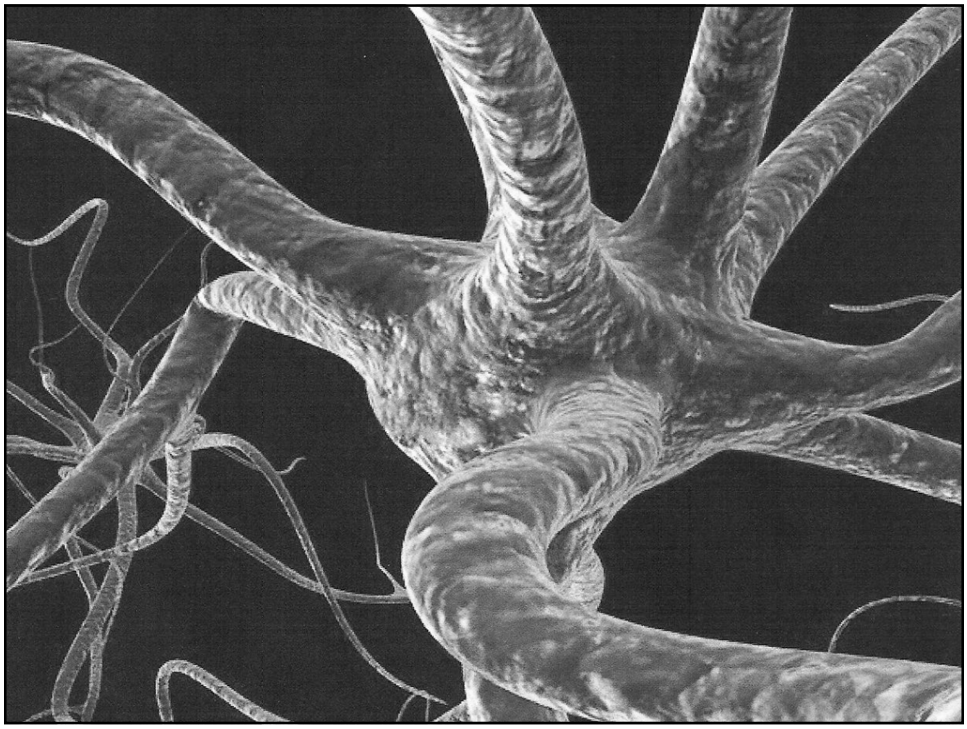


Table 32.1 Representative Classes of Intercellular Communication Agents

Communication Agent	Type	Function
Prostaglandins	Small molecules derived from arachidonic acid	Cellular regulators
Leukotrienes and thromboxanes	Small molecules derived from arachidonic acid	Proinflammatory
Nitric oxide	Small molecule derived from arginine via nitric oxide synthase	Immune, neurological, vascular effects
Dopamine, serotonin, acetylcholine	Small molecules derived from tyrosine, tryptophan, and choline, respectively	Neurotransmitters
Cortisol, aldosterone	Small molecules derived from cholesterol	Stress hormones and electrolyte control
Estrogen, testosterone, DHEA	Small molecules derived from cholesterol	Sex hormones
Melatonin	Small molecule derived from tryptophan	Sleep regulation
N-methyl D-aspartate (NMDA), glutamate	Small molecules derived from aspartic and glutamic acids	Excitotoxins
Endorphins	Polypeptide	Pain and immune regulation
Insulin, glucagon, somatostatin	Polypeptide	Blood sugar control
Interleukins, tumor necrosis factor, interferon	Protein	Inflammation process and immune function
NFκB/IκB	Protein	Control of oxidant response
ICAM/VCAMs	Protein	Cellular and vascular adhesion
Leptin	Protein	Appetite control
Vasopressin, ACTH, TSH, oxytocin	Polypeptides	Pituitary hormones
Bombesin, vasoactive intestinal peptide	Peptide	Gut-brain transmitters
C-reactive protein (CRP), serum amyloid A (SAAO)	Protein and protein-carbohydrate complex, respectively	Inflammatory markers
Natriuretic peptides (atrial, brain, and C-type natriuretic peptide)	Peptide	Diuretic, vasorelaxant

XC – Transport System

- The xc-transport system (Knackstedt et al, 2009) is a regulated cystine/glutamate antiporter mechanism that effects compulsive and urge-driven behavior
- The mechanism exchanges extracellular cystine for intracellular glutamate, which is the primary source of extracellular glutamate in the Nac
- Extracellular glutamate differs from synaptic glutamate by acting on autoreceptors found in the presynaptic neuron, acting as a negative feedback loop to prevent excessive glutamate release and subsequent hyper excitatory states
- Over time drug use can reduce the xc- transport efficiency resulting in decreased extracellular glutamate and increased synaptic glutamate contributing to increased cravings and drug use perpetuity
- To effect this mechanism is to reduce cravings and discomfort around addiction – this is a unified mechanism of involvement for all addictive mechanics

25

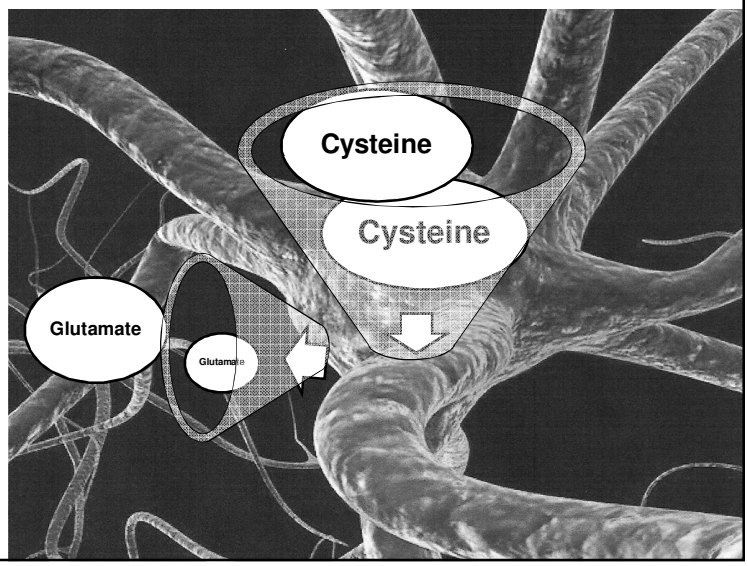
XC – Transport System

- Decreased xc-transport activity has been observed in gambling (Grant et al, 2007) and in nail biting (Berk et al, 2009), as well as other carving associated behavior
- N-Acetylcysteine can be used to preceded cysteine and then promote glutathione production
- Research has also discovered that NAC can reduce cravings and impulsivity (urge-driven behavior) by promoting xc-transport of cysteine to reduce glutamate activity
- This is two birds with one stone and everyone should be on NAC, especially as we age and through menopausal years

26

XC – Transport System

Exchanging cysteine for intracellular glutamate



Promoting Dopamine

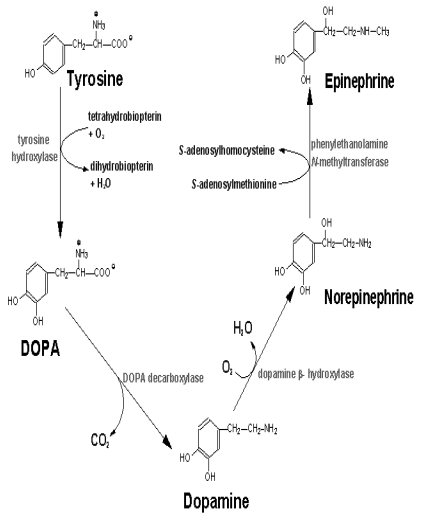
The biosynthetic pathway and metabolism of catecholamines:

Tyrosine converts to L-DOPA (3,4-dihydrophenylalanine)

Then converts to Dopamine

Which is hydroxylated to Norepinephrine

Then further methylated to Epinephrine



Promoting Dopamine

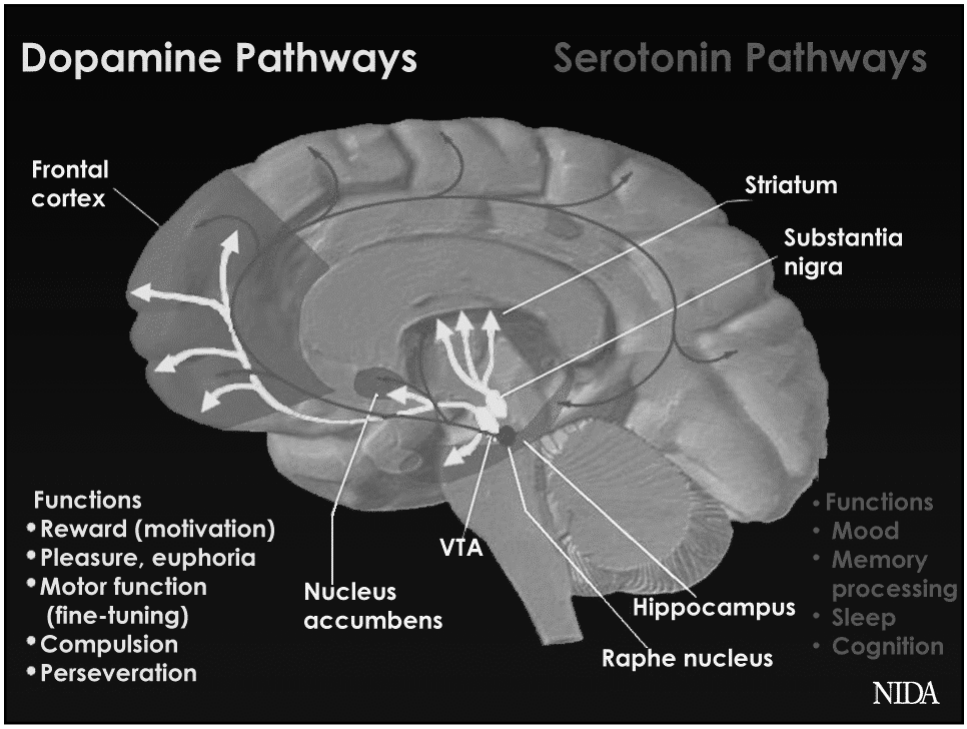
- Epigallocatechin gallate (EGCG) from Green Tea Extract supports norepinephrine and dopamine (Hurst et al, 2009)
- L-DOPA (L-3,4-dihydroxyphenyalanine increases dopamine (Palhagen et al, 2005)
- L-Tyrosine or N-Acetyl Tyrosine (1 – 1.5 mg/day) can increase dopamine and norepinephrine resulting in depression, lethargy, focus issues, negativity
- L-Phenylalanine (400 mgs tid on empty stomach) reduces moodiness and irritability (Pohle-Krauza et al, 2008)
- Coleus Forte (1 bid) supplies forskolin to increase cAMP and supports catecholamine function (Henderson et al, 2005)

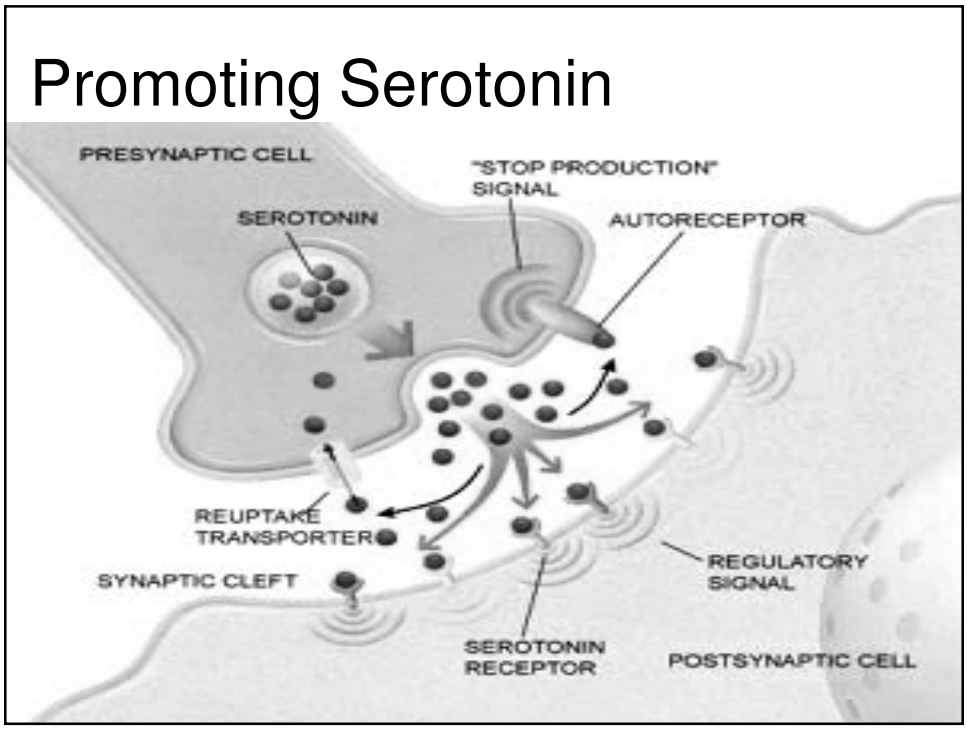
29

Promoting Dopamine

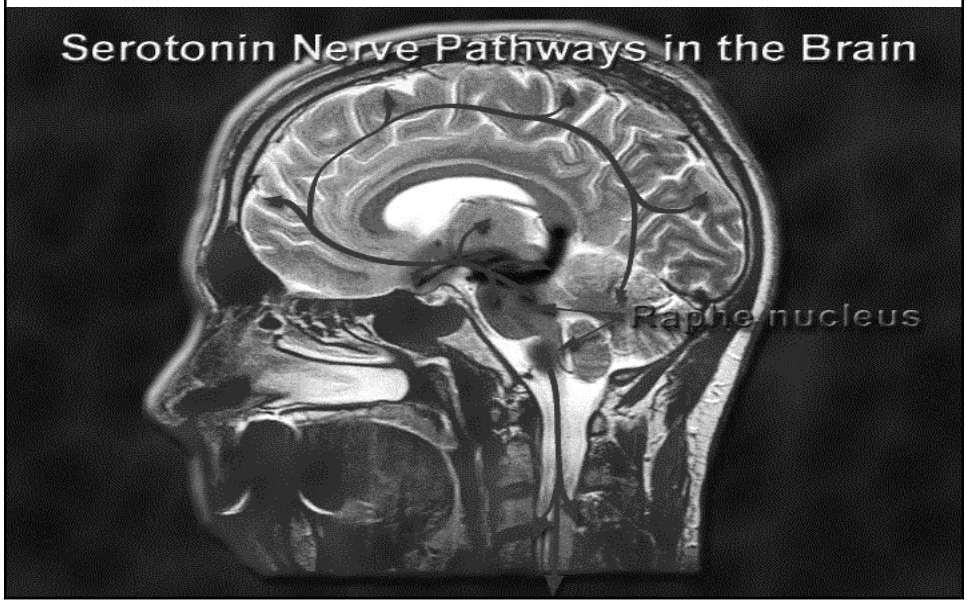
- Prevent hypoglycemia by increasing food intake to 6 meals per day and reducing carbs – b ring balance to insulin/cortisol relationship
- Omega 3 EFA (Tuna Omega 2 bid) has been linked to deficiency in rats and diminished dopamine receptors
- Vitamin A is often overlooked, but the distribution of retinoid receptors in the amygdala, hippocampus, and the limbic brains regions suggest a relationship with hypodopaminergic states
- Melatonin is one of the few nutraceuticals that can reduce dopamine in the hyperdopaminergic state associated with psychotic disorder
- Folate and Folic Acid have been shown to increase dopamine levels due to the methylation support

30


Dopamine Pathways
Serotonin Pathways
Frontal cortex
Striatum
Substantia nigra
Functions
• Reward (motivation)
• Pleasure, euphoria
• Motor function (fine-tuning)
• Compulsion
• Perseveration
VTA
Nucleus accumbens
Hippocampus
Raphe nucleus
• Functions
• Mood
• Memory processing
• Sleep
• Cognition
NIDA


Promoting Serotonin
PRESYNAPTIC CELL
"STOP PRODUCTION" SIGNAL
SEROTONIN
AUTORECEPTOR
REUPTAKE TRANSPORTER
SYNAPTIC CLEFT
REGULATORY SIGNAL
SEROTONIN RECEPTOR
POSTSYNAPTIC CELL

Promoting Serotonin

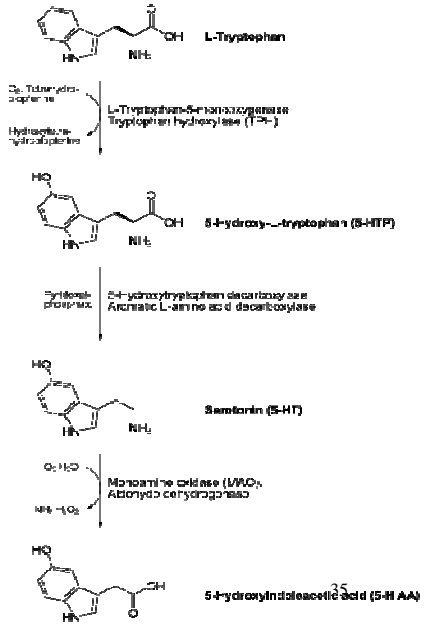


Promoting Serotonin

- Serotonin starvation is a virtual epidemic in USA with estimates at 80% of adults suffering from this
- It is so vital to our emotional processing that it is our primary defense against anxiety and depression
- Tryptophan is primary found in high protein food (turkey, beef, pork, dairy, chicken, eggs) – modern foods are dwindling in tryptophan due to animal diets of corn instead of grasses – vegetarian is at greater risk of serotonin depletion

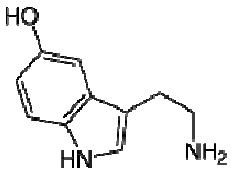
Promoting Serotonin

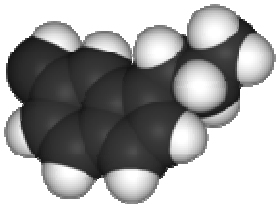
- L-Tryptophan can promote serotonin levels
- L5-Hydroxytryptophan (L5-HTP) increases the production of serotonin (Amer et al, 2004)
- Folic Acid/B12 (2 bid) and folate deficiency has been associated with depression, apathy and impaired concentration – folic acid is factor in rate limited enzyme hydroxylase in dopamine and serotonin synthesis



35

Promoting Serotonin





- Alpha Lactalbumin (LAC) enhances serotonin synthesis, lowers cortisol L-Tryptophan
- Reducing cortisol is serotonin sparing, thus Adrenal Complex (2 bid) and Drenamin (3 bid) can assist in reducing CRH from the hypothalamus and ACTH from the pituitary

36

Serotonin/ Dopamine Dynamics

- A crash course in neurotransmitter chemistry reveals that there is a balancing mechanism between serotonin and dopamine in the brain
- When serotonin rises dopamine becomes less effective
- When dopamine rises serotonin becomes less effective
- Too much serotonin, or too little dopamine results in “I don’t care” attitudes
- Too much dopamine, or to little serotonin results in becoming obsessive, moody and inflexible
- This is why nutritional support to the neurotransmitter production is preferred to drug therapy as it is less likely to induce imbalance

37

Promoting Acetylcholine

- Gingko Biloba Forte (1-2 bid) promotes blood flow to the brain and subsequent activity
- Tuna Omega (2 bid) contributes DHA and EPA to reduce inflammation and promote brain function
- Huperzine A (HupA), a traditional Chinese herbal medicine, increases acetylcholine by inhibiting the acetylcholine degrading enzyme called ACHe this increasing synaptic acetylcholine (Zhao & Tang, 2002)
- Carnitine in the form of acetylcarnitine has been shown to raise brain acetylcholine levels by promoting choline acetyltransferase (also inhibits mitochondrial dysfunction through antioxidant effects)

38

Promoting Glutamate balance

- Glutamate is the principal excitatory neurotransmitter in the brain
- Magnesium reduces endogenous glutamate levels thus reducing neuronal excitability
- N-Acetyl Cysteine reduces synaptic glutamate (LaRowe et al, 2006)
- Tuna Omega (2 bid) reduces glutamate release by limiting release of membrane bound arachidonic acid – it also modulates sodium and calcium channels in excitable tissue, inhibition of phospholipase activity (similar to lithium)
- Melatonin has been shown to reduce and inhibit the hyperdominergic state associated with psychotic disorders – it promotes secretion of adenosine which acts as a potent inhibitor of glutamate and dopamine

39

Promoting Cholecystokinin (CCK)

- CCK, like other peptides of gastrin, secretin, and motilin, originate in the digestive system and act a neuromodulators that send hunger/satiety signals to the brain via the vagus nerve (Dockray, 2009)
- In the brain CCK is co-released with dopamine in the Nucleus Accumbens and acts as a pleasure/reward signal
- L-Phenyalanine increase CCK (Pohle-Krauza et al, 2008)
- A F Betafood (5 bid) causes bile formation and subsequent healthy peristaltic stimulation resulting in CCK secretion
- Livton (2 bid) is also a cholagogue promoting similarly CCK secretion

40

Promoting GABA

- Pyrodoxine (B6) promotes GABA directly by acting as the key cofactor in decarboxylation of glutamate into GABA (principal inhibiting neurotransmitter in the brain) – always take with entire B complex to avoid B6 toxicity
- GABA is the principal inhibiting neurotransmitter in the brain – so it all about slowing things down and cooling the brain
- Pyridoxine deficient states are found with low levels of GABA in the cerebrospinal fluid

41

Promoting cAMP

- cAMP is like gold to the brain because of its activation of protein kinase A that phosphorylates and increases the antiapoptotic factor BCL-2 – this in turn inhibits the opening of the membrane preventing the release of the 'death driving' cysteine proteases involved in programmed cell death
- Coleus Forte (1 bid) supplies forskolin to increase cAMP and supports catecholamine function (Henderson et al, 2005)
- This initiates a what is regarded as a prolife signaling cascade
- Lipoic Acid (tid) can promote cAMP release
- Also cAMp is promoted with low calorie lifestyles, low glycemic diets

42

Effecting Biochemistry From Within

- The internal pharmacy is activated by the thought and emotional intelligence that delivers he same reward and pleasure signals to the brain
- This is why truth and spirituality are so attractive and naturally resonant with people
- Truth and virtue satisfies our brain chemistry and leaves us satisfied
- Blame and shame robs our brain chemistry often requiring avoidance and denial behavior to reduce the stress
- Try an experiment of finding the goodness and blessing in the irritating things of your life – notice the neurohormonal sense of wellbeing that ensues

43

Five Brain Areas – Five Expressions

- There are five brain systems that are most intimately involved with behavior:
  - 1 – Deep Limbic System at the center of the brain is the bonding and mood control center – imbalanced people struggle with moodiness and negativity
  - 2 – Basal Ganglia are large structures deep within the brain controlling the body's idling speed – imbalance here results in anxiety, panic, fearfulness, and conflict avoidance – or if underactive the struggle will involve concentration and fine motor control
  - 3 – Prefrontal Cortex at the front tip of the brain is the supervisor helping to keep focus, make plans, control impulses, make good/bad choices – under activity results in limited supervision, attention span, focus, organization and follow through
  - 4 – Cingulate runs longitudinally through the middle of the frontal lobes and is the 'gear shifter', allowing to shift attention from thought to thought and between behaviors – when overactive people get stuck in loops of thoughts or behavior resulting in rigidity, worry and over-focused behavior
  - 5 – Temporal Lobes are involved with memory, understanding language, facial recognition and temper control – these problems tend to be temper attacks, rapid mood shifts, memory or learning problems – optimization may result in inner peace

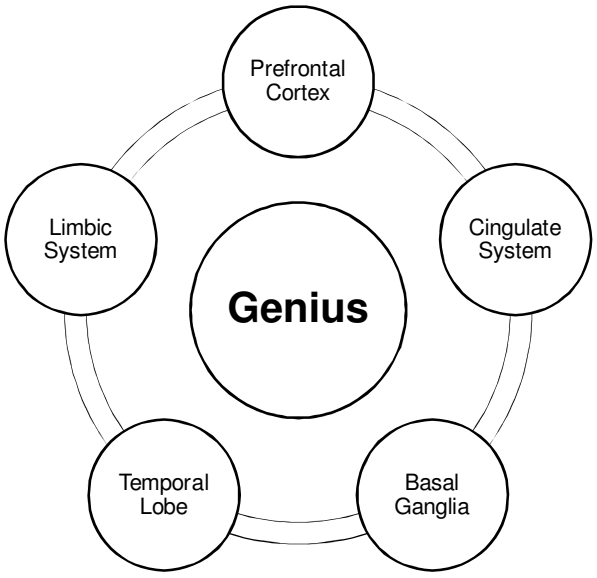
44

Brain Function – Expressions

- The brain considered in five efforts is best analogized to a group camping out together:
  - Wandering about the campgrounds reveals that some campsites are immaculate and well groomed, wile others are in shambles and disorganized.
  - Upon closer examination some people have the knack to improvise and create as if they were native to the environment, while others are foreign to their surroundings and show it.
  - Later in the evening it gets worse – during dinner revisiting various sites friends some eating beef stroganoff with special garnishes that were hiked in in small containers because advance planning had occurred. Other less organized campers are eating cups of yogurt for dinner out of their back packs because they were damaged and leaked out on the hike in.
  - Some are learning never to do this again, others are further building their cognitive flexibility and planning future challenges.
  - The more you intensify the circumstances the more limitations are engaged. (winter camping, rain, heavy wind, etc)
  - Our patients are campers, learning to like or dislike the journey.

45

Five Brain System – See it, Treat it



46

Deep Limbic System

Structure of the Deep Limbic System

- It is the connection between the reptilian basal brain (survival) and the problem solving, planning, organizing, rational mammalian brain
- In order for this higher function to have an effect in the world one must have passion, emotion and the desire to make things happen
- The deep limbic system adds this emotional spice to the person and dedicates purpose and intent
- The hypothalamus is the brain of the deep limbic system
- As taught in prior seminars the hypothalamus is an integrator or governor of information derived from 4 separate vectors to arrive at a 'state of being'
- It states how to be and how to approach the current moment

47

Deep Limbic System

Function of the Deep Limbic System

- Sets emotional tone of the mind
- Filters external events through internal states (creates emotional coloring)
- Tags events as internally important
- Stores highly charged emotional memories
- Modulates motivation
- Controls appetite and sleep cycles
- Promotes bonding
- Directly processes olfaction
- Modulates libido

48

Deep Limbic System

Problems of the Deep Limbic System

- Moodiness, irritability, clinical depression
- Increased negative thinking
- Negative perception of events
- Decreased motivation
- Flood of negative emotions
- Appetite and sleep problems
- Decreased or increased sexual responsiveness
- Social isolation

49

Deep Limbic System

Three Extensions of Problems in the Deep Limbic System

- Bonding Disruption – most powerful is mother/child bond – initial post partum depression can interrupt baby bonding and result in failure to thrive (measured in animals and humans) – also happens later in life for three reasons: death, divorce, empty nest syndrome
- Depression – People who are depressed often isolate themselves which creates more depression – neurotransmitter imbalance especially of serotonin and norepinephrine
- Manic-Depressive Disorder – loss of mood stabilization with delusional states
- PMS Filters - Left side limbic overheating results in externalized anger, irritability and expressed negative emotion – Right side internalized sadness, withdrawl, anxiety and repressed negative emotion

50

Deep Limbic System

Nutrition to Balance The Deep Limbic System

- General protein intake increases production of all neurotransmitters
- L-Tryptophan can promote serotonin levels
- Inositol (12-20 mg/day) has been shown to decrease moodiness and depression
- L-Tyrosine or N-Acetyl Tyrosine (1 – 1.5 mg/day) can increase dopamine and norepinephrine resulting in depression, lethargy, focus issues, negativity
- Increase protein snacks and reduce carbs
- L-Phenylalanine (400 mgs tid on empty stomach) reduces moodiness and irritability (Pohle-Krauza et al, 2008)
- St. John's Wort (500 mgs bid) reduces depression and a cooling effect on the limbic structures

51

Deep Limbic System

Nutrition to Balance The Deep Limbic System

- Symplex F/M (3 bid), Hypothalamex/us (1 bid), Black Currant Seed oil (1 bid) promotes HPA axis repair and resilience
- Epimune (1bid), Echinacea (1 bid) and Sequential Immune Up-Regulation modulates hypothalamic tone
- Coleus Forte (1 bid) supplies forskolin to increase cAMP and supports catecholamine function (Henderson et al, 2005)
- Huperzine A from Huperzia Seratta leaf extract (standardized to 1%) increases acetylcholine (Zhao & Tang, 2002)
- Nevaton (1 tid) contributes hypericins and pseudohypericins to balance mood swings and supports healthy nervous tone

52

Deep Limbic System

Nutrition to Balance The Deep Limbic System

- Epigallocatechin gallate (EGCG) from Green Tea Extract supports norepinephrine and dopamine (Hurst et al, 2009)
- L-DOPA (L-3,4-dihydroxyphenyalanine increases dopamine (Palhagen et al, 2005)
- Adrenal Complex (2 bid) modulates cortisol and intermediates reducing stress response and cooling of the hypothalamus
- Reducing cortisol with lifestyle management such as sleep hygiene and more regular food intake (6 meals/day)
- Minchex (1 or 2 qid) to reduce muscle tension and reduce smooth muscle tension thus inducing relaxation to reduce limbic stress activity

53

Deep Limbic System

Techniques to Balance The Deep Limbic System

- Kill the ANTs – Autonomic Negative Thoughts are cynical, gloomy and complaints that seem to march in all by themselves – accurate thinking eliminates ANTs
- Surround yourself with positive bonding people
- Build people skills to enhance bonding
- Protect children with limbic bonding
- Value and promote physical contact
- Surround oneself with great smells – activate olfaction
- Build a library of wonderful memories – reinforce the hippocampus
- Physical exercise builds endorphins

54

Basal Ganglia

- 2 – Basal Ganglia are large structures deep within the brain controlling the body's idling speed – imbalance here results in anxiety, panic, fearfulness, and conflict avoidance – or if underactive the struggle will involve concentration and fine motor control
- They are a set of large structures toward the center of the brain that surround the deep limbic system
- These ganglia integrate the feelings, thoughts and movements which is why you jump when excited, tremble when nervous, freeze when scared, or get tongue tied when being criticized
- The basal ganglia allow for a smooth integration of emotions, thoughts, and physical movement – when there is too much input the tend to lock up, freeze and become immobile in thought and action
- When underactive attention disorders result – people with ADD are more able to respond to stress than others
- Another clue of function lies in the diseases Parkinson's Disease which results in 'pill-rolling' hand tremors, muscle rigidity, cogwheeling, loss of agility, loss of facial expression, and slow movements – and Tourette's Syndrome wherein the subject loses the ability to suppress unwanted motor and vocal tics
- Overactivity results in anxiety, tension, increased awareness,and fear
- Underactivity results in low motivation, low energy, and loss of get up and go[55]

Basal Ganglia

- Unique to the basal ganglia is the involvement with the pleasure control loops
- One brain-imaging study performed by the Nora Volkow's group at the Brookhaven National Laboratory in Upton, NY showed cocaine and Ritalin were mostly amplifying activity in the basal ganglia
- Both drugs increase dopamine availability in the Basal ganglia – cocaine come sin fast and clears quickly, Ritalin comes in slow and clears slowly
- Of interest is the fact that romantic love creates the same basal ganglia activity as these drugs, which is why lovers have a drug high
- The intensity of this activity can almost rival seizure activity in these basal ganglia
- How can we increase stimulation to this part of the brain to assist people to let go of their addictive tendencies to promote dopamine in the basal ganglia?

56

Basal Ganglia System

Function of the Basal Ganglia System

- Integrates feeling and movement
- Shifts and smoothes fine motor behavior
- Suppresses unwanted motor behaviors
- Sets the body's idle speed or anxiety level
- Enhances motivation
- Mediates pleasure and ecstasy

57

Basal Ganglia System

Problems of the Basal Ganglia System

- Anxiety and nervousness
- Panic attacks
- Somatic expressions of anxiety
- Tendency to predict the worst
- Conflict avoidance
- Tourette's syndrome/ tics
- Muscle tension and aching
- Tremors
- Fine motor problems
- Headaches
- Low or excessive motivation

58

Basal Ganglia System

Extensions of Problems in the Basal Ganglia System

- Anxiety, Nervousness, Panic Disorder – When the basal ganglia resets the body's idle to a revved-up state it can create anxiety, nervousness, tension, and pessimism (all panic disorder/ agoraphobia resides here)
- Post Traumatic Stress Disorder (PTSD) – memories torment the basal ganglia continuing the original stress
- Conflict Avoidance – Anxiety is unpleasant and results in avoidance behavior to reduce it

59

Basal Ganglia System

Extensions of Problems in the Basal Ganglia System

- Tics and Tourette's – Characterized by motor and vocal tics lasting more than a year (Motor tics – blinking, head jerking, shoulder shrugging, arm or leg jerking/ Vocal tics – coughing, puffing, blowing, barking, swearing (coprolalia)
- Fine Motor Problems – Due to increased muscle tone handwriting abnormalities and 'shakes' can occur leading to more profound tension and migraine headaches
- Low and High Motivation – Dopamine deficient states reduce motivation, but also high serotonin blocks dopamine and induces the same reduced ambition – increase basal ganglia states may cause excessive ambition and workaholics

60

Basal Ganglia System

Nutrition to Balance The Basal Ganglia System

- General protein intake increases production of all neurotransmitters
- Eliminate food allergens that amplify stress and cortisol levels
- Prevent hypoglycemia by increasing food intake to 6 meals per day and reducing carbs – b ring balance to insulin/cortisol relationship
- L-Tyrosine or N-Acetyl Tyrosine (1 – 1.5 mg/day) can increase dopamine and norepinephrine resulting in depression, lethargy, focus issues, negativity
- Eliminate stimulants like caffeine as it amplifies the basal ganglia tone
- Eliminate alcohol because it reduces anxiety short term but induces more when withdrawl occurs

61

Basal Ganglia System

Nutrition to Balance The Basal Ganglia System

- Epigallocatechin gallate (EGCG) from Green Tea Extract supports norepinephrine and dopamine (Hurst et al, 2009)
- L-DOPA (L-3,4-dihydroxyphenyalanine increases dopamine (Palhagen et al, 2005)
- Adrenal Complex (2 bid) modulates cortisol and intermediates reducing stress response and cooling of the basal ganglia
- Reducing cortisol with lifestyle management such as sleep hygiene and more regular food intake (6 meals/day)
- Valerian Complex (1 bid) promotes relaxation and helps with sleeplessness
- Withania Complex (1 bid) promotes stress response balance and thus relaxation, cortisol/adrenal support, reduces inflammatory cytokine signaling

62

Basal Ganglia System

Nutrition to Balance The Basal Ganglia System

- Minchex (1 or 2 qid) to reduce muscle tension and reduce smooth muscle tension thus inducing relaxation to reduce basal ganglia activity
- Astragulus Complex (1 bid) promotes health immune response, healthy stress response, and general well-being
- B vitamin (especially B6) found in Cataplex B (3 bid) and Cataplex G (3 bid)
- Bacopa Complex (1 bid) can enhance mental clarity and cognitive function and reduce stress responses

63

Basal Ganglia System

Techniques to Balance The Basal Ganglia System

- Kill the fortune-telling ANTs – Autonomic Negative Thoughts are predictive and result in being less disappointed (conflict avoidance) - accurate thinking eliminates ANTs
- Guided imagery can break the cycle and induce positive outcome thinking
- Diaphragmatic breathing
- Meditation to reduce stress
- Deal with conflict
- Surround with great smells – activate olfaction, especially oils of chamomile and lavender

64

Prefrontal Cortex

Structure of the Prefrontal Cortex

- Prefrontal Cortex at the front tip of the brain is the supervisor helping to keep focus, make plans, control impulses, make good/bad choices – under activity results in limited supervision, attention span, focus, organization and follow through
- The most evolved part of brain occupying the front third of the cranium behind the forehead
- Three sections:
  - Dorsal Lateral on the outside surface of the PFC
  - Inferior Orbital Section on the frontal undersurface of the PFC
  - Cingulate Gyrus runs down the middle of the frontal lobes

65

Prefrontal Cortex

Structure of the Prefrontal Cortex

- The dorsal lateral and inferior orbital gyrus are considered the executive control center of your brain
- The PFC allows for behaviors that are goal-directed, socially responsible, and effective
- Inferior orbital PFC helps you think about what you say or do before you say it or do it
- Dorsolateral PFC allows feeling and expressing emotions
- Without PFC function it is difficult to act in consistent and thoughtful ways and impulses can take over
- Good PFC does not mean you won't make mistakes – it means you won't make the same ones over and over
- The PFC has many connections to the limbic system, sending inhibitory signals to help keep it under control

66

Prefrontal Cortex

Function of the Prefrontal Cortex

- Attention Span
- Perseverance
- Judgment
- Impulse control
- Organization
- Self-monitoring and supervision
- Problem solving
- Critical thinking
- Forward thinking
- Learning from experience
- Ability to feel and express emotion
- Empathy
- Interaction with the limbic system

67

Prefrontal Cortex

Problems of the Prefrontal Cortex

- Short attention span
- Distractibility
- Lack of perseverance
- Impulse control problems
- Hyperactivity
- Chronic lateness, poor time management
- Disorganization
- Procrastination
- Emotional unavailability
- Misperceptions
- Poor judgment
- Trouble learning from experience
- Short-term memory problems
- Social and test anxiety

68

Prefrontal Cortex

Three Extensions of Problems in the Prefrontal Cortex

- ADD – Basically a genetically inherited disorder of the PFC , due in part to a deficiency of dopamine – only half of people with ADD have hyperactivity
- Psychotic Disorders – Inability to distinguish reality from fantasy
- Head Injuries – The brain is very fragile like a computer, withy the PFC being in a most vulnerable position for injury. Many people have head injuries that they forget about, which alter the ability to learn and be in true character

69

Prefrontal Cortex

Nutrition to Balance The Prefrontal Cortex

- L-Tyrosine or N-Acetyl Tyrosine (1 – 1.5 mg/day) can increase dopamine and norepinephrine resulting in more cognition and focus/energy
- Increase protein snacks and reduce carbs
- OPC Synergy (1-3 tid) increases PFC activity by the action of oligomeric procyanidins, best derived fr4om grape seed or pine bark
- Gingko Biloba Forte (1-2 bid) promotes blood flow to the PFC and subsequent activity
- Tuna Omega (2 bid) contributes DHA and EPA to reduce inflammation and promote PFC function
- Huperzine A (HupA), a traditional Chinese herbal medicine, increases acetylcholine by inhibiting the acetylcholine degrading enzyme called ACHe this increasing synaptic acetylcholine (Zhao & Tang, 2002)

70

Prefrontal Cortex

Nutrition to Balance The Prefrontal Cortex

- Epigallocatechin gallate (EGCG) from Green Tea Extract supports norepinephrine and dopamine (Hurst et al, 2009)
- L-DOPA (L-3,4-dihydroxyphenyalanine) increases dopamine (Palhagen et al, 2005)
- Adrenal Complex (2 bid) modulates cortisol and intermediates reducing stress response and cooling of the PFC
- Reducing cortisol with lifestyle management such as sleep hygiene and more regular food intake (6 meals/day)
- Withania Complex (1 bid) promotes stress response balance and thus relaxation, cortisol/adrenal support, reduces inflammatory cytokine signaling

71

Prefrontal Cortex

Nutrition to Balance The Prefrontal Cortex

- Minchex (1 or 2 qid) to reduce muscle tension and reduce smooth muscle tension thus inducing relaxation to reduce basal ganglia activity
- Gotu Kola Complex (1 bid) promotes PFC cognitive function with combination of gingko and gotu kola
- B vitamin (especially B6) found in Cataplex B (3 bid) and Cataplex G (3 bid)
- Bacopa Complex (1 bid) can enhance mental clarity and cognitive function and reduce stress responses
- Carnitine in the form of acetylcarnitine has been shown to raise brain acetylcholine levels by promoting choline acetyltransferase (also inhibits mitochondrial dysfunction through antioxidant effects)

72

Prefrontal Cortex

Techniques to Balance The Prefrontal Cortex

- Try the One Page Miracle – do goal setting exercise as a way to increase focus in positive directions
- Focus on positives, instead of negatives
- Include purpose and meaning
- Get organized – promote PFC function
- Biofeedback training
- Stop the overstimulation – stop yelling, speak gently – starve the need for external stimulus
- Classical music, especially Mozart

73

Finally

Whatever is honorable,
whatever is right,
whatever is pure,
whatever is lovely,
whatever is of good repute,
if there is any excellence
and if there is anything
worthy of praise,
let your mind dwell on these
things.

Philippians 4:8

Cingulate System

- The cingulate gyrus traverses longitudinally through the deep central aspects of the frontal lobes
- It is the part of the brain that allows you to shift your attention from one thing to another - the 'gear shifter'
- Best term to associate with this part of the brain is cognitive flexibility defining a person's ability to 'go with the flow'
- Allowing to shift attention from thought to thought and between behaviors
- When overactive people get stuck in loops of thoughts or behavior resulting in rigidity, worry and over-focused behavior
- Effectively managing change and transitions is essential to personal , Interpersonal and professional growth
- It makes it easy to shift into cooperative behaviors, although problems can get stuck in ineffective behavior

75

Cingulate System

Structure of the Cingulate Gyrus

- Cingulate System is involved with future oriented thinking such as planning and goal setting
- Difficulty in this part of the brain cause negative predictions and unsafe feelings
- When abnormal people get stuck on things, can't let go, lock into things becoming perseverant, and rethink the same thought over and over
- Compulsions to check locks and hand washing are part of this system
- Worry, holding onto hurts from the past, cognitive inflexibility, and rigidity make life gloomy

76

Cingulate System

Function of the Cingulate System

- Ability to shift attention
- Cognitive flexibility
- Adaptability
- Movement from idea to idea
- Ability to see options
- Ability to 'go with the flow'
- Ability to cooperate

77

Cingulate System

Problems of the Cingulate System

- Worrying
- Holding on to hurts from the past
- Obsessions – getting stuck on thoughts
- Compulsions – getting stuck on behaviors
- Oppositional behavior
- Argumentative
- Uncooperative – saying 'no' automatically
- Addictive behavior – alcohol, drug, eating disorder
- Chronic pain
- Cognitive inflexibility
- OCD – Obsessive-compulsive disorder
- Eating disorders
- Road rage

78

Cingulate System

Extensions of Problems in the Cingulate System

- Worrying – Everyone worries occasionally, but these problems integrate worry into the personality to the point of causing emotional and physical harm to themselves
- Holding onto hurts from the past –
- Cognitive Inflexibility –
  - Short list includes:
    - Automatic No
    - Road Rage
    - Obsessive-Compulsive Disorder
    - Chronic Pain
    - Eating Disorder
    - Drug or Alcohol Addiction
    - Pathological Gambling
    - Compulsive Spending
    - Oppositional Defiant Disorder

79

Cingulate System

Nutrition to Balance The Cingulate System

- ❖ General protein intake increases production of all neurotransmitters
- ❖ L-Tryptophan can promote serotonin levels
- ❖ Inositol (12-20 mg/day) has been shown to decrease moodiness and depression
- ❖ St. John's Wort (500 mgs bid) supplying hypericin reduces depression and a cooling effect on the cingulate system
- ❖ Increase carbs that release L-Tryptophan (snacks like starches and popcorn)
- ❖ Foods rich in Tryptophan are chicken, turkey, salmon, beef, peanut butter, eggs, green peas, potatoes, milk

80

Cingulate System

Nutrition to Balance The Cingulate System

- Minchex (1 or 2 qid) to reduce muscle tension and reduce smooth muscle tension thus inducing relaxation to reduce basal ganglia activity
- Dietary L-Tryptophan is inefficient way of increasing brain serotonin because the molecule is large and does cross the blood brain barrier easily
- Alpha Lactalbumin (LAC) enhances serotonin synthesis, lowers cortisol
- Symplex F/M (3 bid), Hypothalamex/us (1 bid), Black Currant Seed oil (1 bid) promotes HPA axis repair and resilience
- Epimune (1bid), Echinacea (1 bid) and Sequential Immune Up-Regulation modulates hypothalamic tone
- Nevaton (1 tid) contributes hypericins and pseudohypericins to balance mood swings and supports healthy nervous tone

81

Cingulate System

Techniques to Balance The Cingulate System

- Notice when you're stuck – Distract yourself – Return to problem later
- Think before saying 'no'
- Write out option when stuck
- Seek counsel from others
- Use serenity prayer
- Paradoxical requests – reverse psychology
- Exercise

82

Temporal Lobe

Structure of the Temporal Lobe

- For many years the temporal lobes were disregarded as significant in human physiology – thought of as arm rests for the brain
- Temporal lobes on the lateral sides of the brain play integral role in memory, emotional stability, learning, and socialization
- Most precious treasures we have ion life are the stored images in our memory banks
- These lobes have been called the "interpretive cortex" as they interpret what we hear and integrate it with stored memories to give meaning to incoming information
- Sits in base of cranium in temporal fossa and surroundind on five sides by bone including the sharp wing of the lesser sphenoid – this means concussion can occur from five different directions

83

The expanded work …

In and through community lies the salvation of the world.

M. Scott Peck

Temporal Lobe

Structure of the Temporal Lobe

- Even minor head injuries can influence temporal lobe function
- Common source of problems arise from genetic predisposition, head injuries, toxic or infectious exposure
- They sit in a vulnerable part of the brain – behind the eye sockets and underneath the temples
- Most people have little memory of head injury and must be encouraged significantly to remember major head trauma

85

Temporal Lobe

Function of the Temporal Lobe

- Understanding and processing language
- Intermediate-term memory
- Long-term memory
- Auditory learning
- Retrieval of words
- Complex memories
- Visual and auditory processing
- Emotional stability
- Subdominant side (usually the right side) –
  - Recognizing facial expressiois
  - Decoding vocal intonation
  - Rhythm
  - Music
  - Visual learning

86

Temporal Lobe

Problems of the Temporal Lobe

- **Dominant (Usually left) Lobe –**
  - Aggression – Internally or externally directed
  - Dark or violent thoughts
  - Sensitivity to lights – mild paranoia
  - Word-finding problems
  - Auditory processing problems
  - Reading difficulties
  - Emotional Instability
- **Subdominant (Usually right) Lobe –**
  - Difficult recognizing facial expression
  - Difficulty decoding vocal intonation
  - Implicated in social-skill struggles
- **Both sides –**
  - Memory problems, amnesia
  - Headaches or abdominal pain without a clear explanation
  - Anxiety or fear for no particular reason
  - Abnormal sensory perceptions – visual or auditory distortion
  - Feelings of déjà vu or jamais vu
  - Periods of spaciness or confusion
  - Hypergraphia (Excessive writing)
  - Seizures

87

Temporal Lobe

Nutrition to Balance The Temporal Lobe

- Reduce acidity and the 3 I's of acidity with the use of minerals, especially Calcium Lactate (3 bid), Organic Minerals (3 bid), Trace Minerals/B12 (3 bid)
- Increase protein snacks and reduce carbs
- Use GABA up-regulation to reduce temporal overstimulation
- Magnesium Lactate (2 bid) is an endogenous glutamate antagonist by preventing excessive neuronal depolarization
- Gingko Biloba Forte (1-2 bid) promotes blood flow to the Temporal Lobe and subsequent cleansing activity
- Tuna Omega (2 bid) contributes DHA and EPA to reduce inflammation and promote PFC function

88

Temporal Lobe

Nutrition to Balance The Temporal Lobe

- Adrenal Complex (2 bid) modulates cortisol and intermediates reducing stress response and cooling of the Temporal Lobes
- Reducing cortisol with lifestyle management such as sleep hygiene and more regular food intake (6 meals/day)
- Withania Complex (1 bid) promotes stress response balance and thus relaxation, cortisol/adrenal support, reduces inflammatory cytokine signaling
- Eliminate stimulants like coffee and nicotine which act as vasoconstrictors to reduce blood flow to the temporal lobes
- Acetylcholine increase

89

Temporal Lobe

Techniques to Balance The Temporal Lobe

- Build library of positive memories
- Singing activates the temporal lobe
- Toning or humming – Ahhh evokes relaxation response
  Ee or ay helps concentration, releases pain/anger
  Oh or om warms skin relaxes muscle tension
- Listen to classical music
- Play a musical instrument
- Moving to rhythm – chanting, dancing, movement
- Sleep – decreased perfusion with less than 6 hours

90

Violence or Aggression

SPECT studies show common patterns:

- Decreased prefrontal activity – trouble thinking clearly
- Increased cingulate activity – getting stuck on thoughts
- Increased or decreased activity in the lft temporal lobe – short fuse
- Increased activity on basal ganglia and limbic system – anxiety and moodiness

91

Five Brain Systems checklist

Please read this list of behaviors and rate yourself (or the person you are evaluating) on each behavior listed. Use the following scale and place the appropriate number next to the item. Five or more symptoms marked 3 or 4 or a total of 20 or higher indicate a high likelihood of weakness with that brain system. A total between 10 and 20 indicates a possibility of an imbalance.

1= never
2= rarely
3= occasionally
4= frequently
5= very frequently

Deep Limbic

___ 1. Feelings of sadness
___ 2. Moodiness
___ 3. Negativity
___ 4. Low energy
___ 5. Irritability
___ 6. Decreased interest in others
___ 7. Feelings of hopelessness about the future
___ 8. Feelings of helplessness or powerlessness
___ 9. Feeling dissatisfied or bored
___ 10. Excessive guilt
___ 11. Suicidal feelings
___ 12. Crying
___ 13. Lowered interest in things usually considered fun
___ 14. Sleep changes (too much or too little)
___ 15. Appetite changes (too much or too little)
___ 16. Low self-esteem
___ 17. Decreased interest in sex
___ 18. Negative sensitivity to smells/odors
___ 19. Forgetfulness
___ 20. Poor concentration

Total_____

Basal Ganglia

___ 1. Feelings of nervousness or anxiety
___ 2. Panic attacks
___ 3. Symptoms of heightened muscle tension (headaches, sore muscles, hand tremor)
___ 4. Periods of heart pounding, rapid heart rate, or chest pain
___ 5. Periods of trouble breathing or feeling smothered
___ 6. Periods of feeling dizzy, faint, or unsteady on your feet
___ 7. Periods of nausea or abdominal upset
___ 8. Periods of sweating, hot or cold flashes, cold hands
___ 9. Tendency to predict the worst
___ 10. Fear of dying or doing something crazy
___ 11. Avoidance of public places for fear of having an anxiety attack
___ 12. Conflict avoidance
___ 13. Excessive fear of being judged or scrutinized by others
___ 14. Persistent phobias
___ 15. Low motivation
___ 16. Excessive motivation
___ 17. Tics
___ 18. Poor handwriting
___ 19. Quick startle reaction
___ 20. Tendency to freeze in anxiety-provoking situations
___ 21. Excessive worry about what others think
___ 22. Shyness or timidity
___ 23. Low threshold of embarrassment

Total_____

Prefrontal Cortex

___ 1. Inability to give close attention to details or avoid careless mistakes
___ 2. Trouble sustaining attention in routine situations (home work, chores, paperwork, etc.)
___ 3. Trouble listening
___ 4. Inability to finish things, poor follow-through
___ 5. Poor organization of time or space
___ 6. Distractibility

— 7. Poor planning skills
— 8. Lack of clear goals or forward thinking
— 9. Difficulty expressing feelings
— 10. Difficulty expressing empathy
— 11. Excessive daydreaming
— 12. Boredom
— 13. Apathy or lack of motivation
— 14. Lethargy
— 15. A feeling of spaciness or being "in a fog"
— 16. Restlessness or trouble sitting still
— 17. Difficulty remaining seated in situations where remaining seated is expected
— 18. Conflict seeking
— 19. Talking too much or too little
— 20. Blurting out of answers before questions have been completed
— 21. Difficulty awaiting turn
— 22. Interruption of or intrusion on others (e.g., butting into conversations or games)
— 23. Impulsivity (saying or doing things without thinking first)
— 24. Trouble learning from experience; tendency to make repetitive mistakes

Total_____

Cingulate System

— 1. Excessive or senseless worrying
— 2. Being upset when things do not go your way
— 3. Being upset when things are out of place
— 4. Tendency to be oppositional or argumentative
— 5. Tendency to have repetitive negative thoughts
— 6. Tendency toward compulsive behaviors
— 7. Intense dislike of change
— 8. Tendency to hold grudges
— 9. Trouble shifting attention from subject to subject
— 10. Trouble shifting behavior from task to task
— 11. Difficulties seeing options in situations
— 12. Tendency to hold on to own opinion and not listen to others
— 13. Tendency to get locked into a course of action, whether or not it is good
— 14. Being very upset unless things are done in a certain way
— 15. Perception by others that you worry too much
— 16. Tendency to say no without first thinking about questions
— 17. Tendency to predict negative outcomes

Total_____

Temporal Lobe

— 1. Short fuse or periods of extreme irritability
— 2. Periods of rage with little provocation
— 3. Frequent misinterpretation of comments as negative when they are not
— 4. Irritability that tends to build, then explodes, then recedes; person often feels tired after a rage
— 5. Periods of spaciness or confusion
— 6. Periods of panic and/or fear for no specific reason
— 7. Visual or auditory changes, such as seeing shadows or hearing muffled sounds
— 8. Frequent periods of deja vu (feelings of being somewhere you have never been) or jamais vu (not recalling a familiar place or person)
— 9. Sensitivity or mild paranoia
— 10. Headaches or abdominal pain of uncertain origin
— 11. History of a head injury or family history of violence or explosiveness
— 12. Dark thoughts, such as suicidal or homicidal thoughts
— 13. Periods of forgetfulness
— 14. Memory problems
— 15. Reading comprehension problems
— 16. Preoccupation with moral or religious ideas

Total_____

Comprehensive Total:_____

Cingulate System	Seratonin	Worrying Holding on to hurts from the past Obsessions – getting stuck on thoughts Compulsions – getting stuck on behaviors Oppositional behavior Argumentative Uncooperative – saying 'no' automatically Addictive behavior – alcohol, drug, eating disorder Chronic pain Cognitive inflexibility OCD – Obsessive-compulsive disorder Eating disorders Road rage	General protein intake L-Tryptophan St. John's Wort (500 mgs bid) Foods rich in Tryptophan are chicken, turkey, salmon, beef, peanut butter, eggs, green peas, potatoes, milk Minchex (1 or 2 qid) Alpha Lactalbumin (LAC) Symplex F/M (3 bid), Hypothalamex/us (1 bid), Black Currant Seed oil (1 bid) Epimune (1bid), Echinacea (1 bid) and Sequential Immune Up-Regulation Nevaton (1 tid)
Temporal Lobe		**Dominant (Usually left) Lobe –** Aggression – Internally or externally directed Dark or violent thoughts Sensitivity to lights – mild paranoia Word-finding problems Auditory processing problems Reading difficulties Emotional Instability **Subdominant (Usually right) Lobe –** Difficult recognizing facial expression Difficulty decoding vocal intonation Implicated in social-skill struggles **Both sides –** Memory problems, amnesia Headaches or abdominal pain without a clear explanation Anxiety or fear for no particular reason Abnormal sensory perceptions – visual or auditory distortion Feelings of déjà vu or jamais vu Periods of spaciness or confusion Hypergraphia (Excessive writing) Seizures	Reduce acidity and the 3 I's of acidity with the use of minerals, especially Calcium Lactate (3 bid), Organic Minerals (3 bid), Trace Minerals/B12 (3 bid) Increase protein snacks and reduce carbs GABA up-regulation Magnesium Lactate (2 bid) Gingko Biloba Forte (1-2 bid) Tuna Omega (2 bid) Adrenal Complex (2 bid) Reducing cortisol with lifestyle management Withania Complex (1 bid) Eliminate stimulants Acetylcholine increase

Key to Five Brain Systems Checklist

- Deep Limbic System –
- Basal Ganglia System –
- Cingulate Nucleus –
- Prefrontal Cortex –
- Temporal Lobes –

There is no finish line …

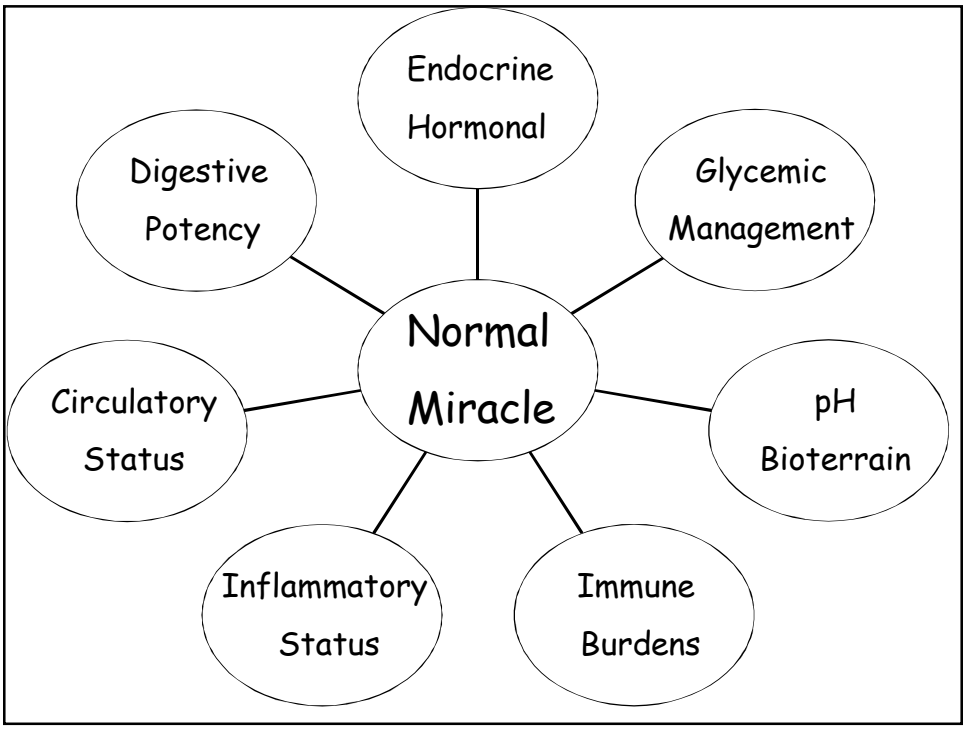
Cultivation of the soul implies a lifelong husbanding of raw materials.

Thomas Moore

Approach to wisdom

Nothing is more beautiful or powerful than an individual acting out of his conscience, helping to bring the collective conscience to life.

Norman Cousins



Visit after visit – Start today

- See each patient for the brain system status they present
- Teach every patient the principles of biochemical reinforcement with nutritional devices and prepare them with concepts to maximize their lifespan and wellspan
- Employ the principles of various nutrient intervention to promote healthy neurotransmitter profiles – Application sequential intervention to determine what unique biochemical factors are at work in a person's physiology
- Be a practitioner who is always developing the patient beyond their request
- Change outcomes, stop disease progression, reveal the inherent healing potential by using principles and products that express The Law (the way it was made to work)
- Use Cataplex G (3/day), Niacinamide (2/day), Tuna Omega (4), Gotu Kola Complex (2), Coleus Forte (2/day), N-Acetyl Tyrosine to promote serotonin, dopamine and acetylcholine levels

The greatest use of your time

Think New Thoughts

Change the world

It wants to

101