Tennant Protocols

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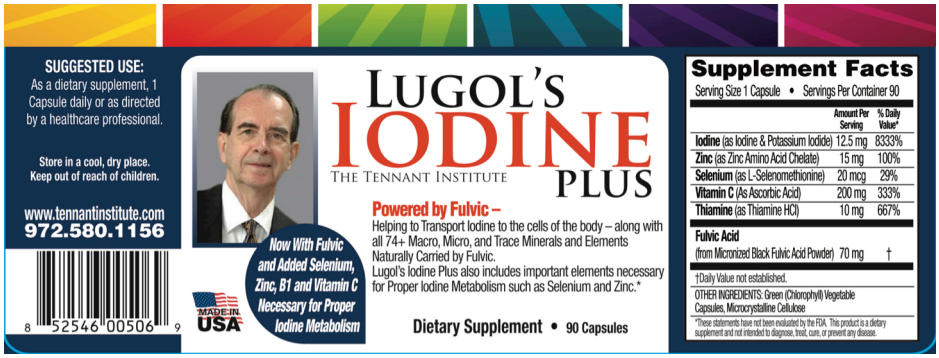
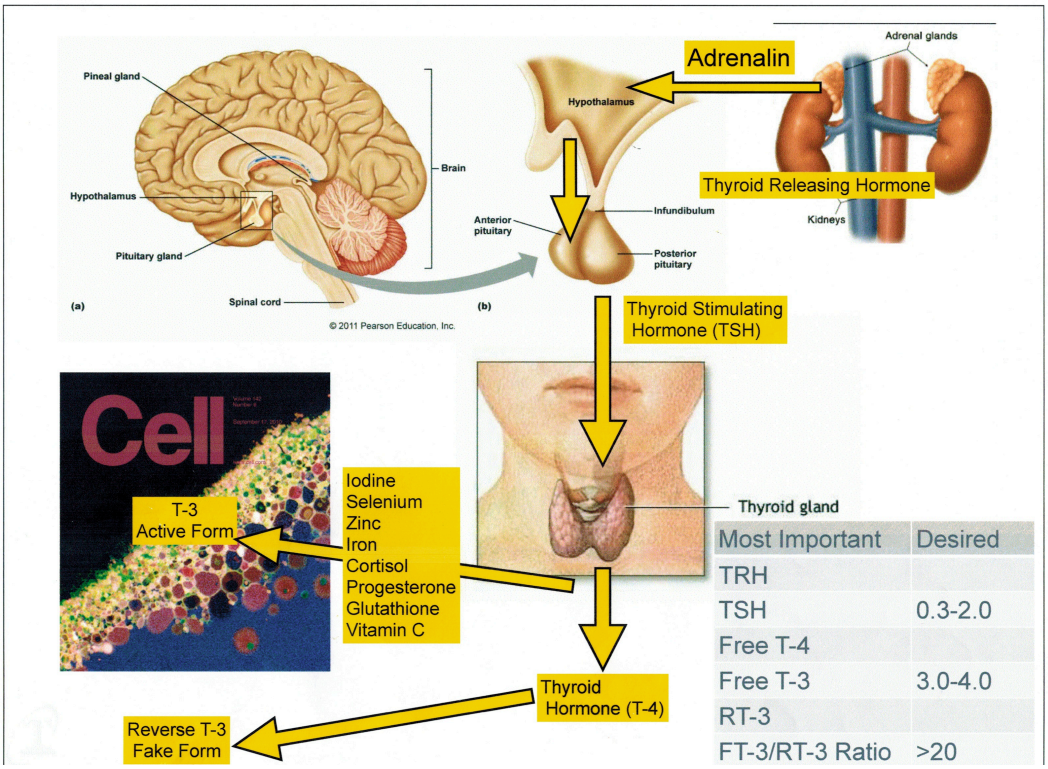
Stomach Acid	Thyroid/Adrenals	Neurochemicals
You cannot be well without stomach acid.	Thyroid and adrenals work together to provide voltage for every cell in the body.	Neurochemical are the control panel of the body.



Stomach Acid

1. Need B1, iodine, zinc, salt, voltage
2. Lack causes
    1. Allergy to all proteins and carbohydrates you eat
    2. Lose control of absorption of fats (no cholecystokinin)
    3. Gall Bladder and Liver won't dump: gall stones and liver congestion with buildup of toxins
    4. Can't make thyroid, adrenal hormones, and neurochemicals: lack of tyrosine
    5. Candida in large intestine: undigested proteins are environment for fungus and bacteria
    6. Zinc deficiency
    7. Phosphorous deficiency

You must learn basic physiology if you are going to make sense out of interactions in the body. For example, how does iodine deficiency make you anxious? Because you need iodine to make stomach acid and you need stomach acid to make tyrosine and you need tyrosine to make GABA to keep you calm.



Most Important	Desired
TRH	
TSH	0.3-2.0
Free T-4	
Free T-3	3.0-4.0
RT-3	
FT-3/RT-3 Ratio	>20

Thyroid

1. T3 controls voltage of cell membranes
2. T2 controls voltage of mitochondria (ATP)
3. Cascade begins in hypothalamus (controlled by adrenalin)
4. Conversion from T4→ T3 requires iodine, selenium, zinc, iron, progesterone, glutathione, cortisol, vitamin C, hydrogen peroxide
5. Almost any symptom can be associated with hypothyroidism
6. Can have normal TSH and normal FT4 and still be 80% deficient at cell if can't convert

Iodine

1. Needed to make stomach acid and thus is a primary controller of the source of tyrosine and thus thyroid, adrenalin, and neurochemicals.
2. Used by every cell to move secretions from inside the cell to outside the cell
3. Deficiency causes cysts: thyroid, breasts, ovaries, styes, chalazia
4. Required by stomach to make stomach acid
5. Animal studies show that you cannot cause Hashimoto's disease in an animal unless they are iodine deficient and they are given a goitrogen. That is what is happening to our human population; we are iodine deficient and we are exposed to an ever-increasing amount of goitrogens like bromide and fluoride.
6. The elevation of TSH is a normal and expected response to iodine supplementation as the TSH stimulates sodium/iodide symporter (NIS)—the transport molecule for iodine. Within 6-12 months TSH levels decline as optimal iodine levels are restored intra-cellularly.
7. Four clinical studies showed TPO and Thyroglobulin antibody levels decrease after selenium supplementation.
8. Selenium deficiency is the underlying

You must get thyroid and adrenals working or nothing else works correctly, especially hormones.

prerequisite for iodine induced thyroid damage in Hashimoto's Thyroiditis. Selenium supplementation is protective and prevents thyroid damage from iodine.

Frontal Lobe (Stomach meridian): The **frontal lobe**, which controls our movement and response to messages that it receives from the sense organs via the **hypothalamus** (controlled by **adrenalin**), is associated with the neurotransmitter **dopamine and beta** brain waves (12-32 Hz).

- Most commonly damaged by dental infection in upper molars or lower premolars
- Signals from whole body end up in **frontal lobe**.

Frontal lobes control:

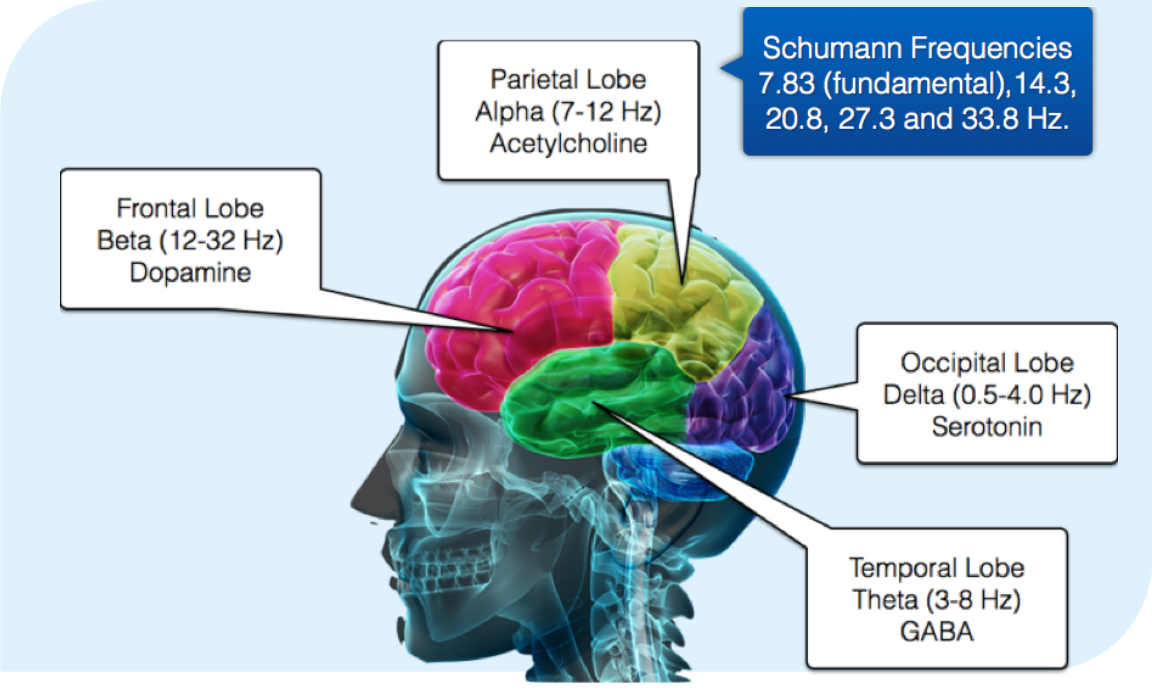
1. Sensation of heat, cold, and touch.
2. Shape your personality.

3.Form Beta waves (12-32 Hz.) to produce Dopamine.

1. Dopamine controls voltage.
2. Monitors metabolism.
3. Works like natural amphetamine.
4. Controls your energy.
5. Controls excitement about new ideas.
6. Motivation.
7. Controls blood pressure, metabolism and digestion.
8. Generates electricity to control voluntary movements.
9. Intelligence.
10. Abstract thought.
11. Setting goals.
12. Long-term planning.
13. Personality.
14. By-product is nor-epinephrine (nor-adrenalin) and epinephrine (adrenalin).

Loss of Dopamine causes:

1. Addictive disorders.
2. Obesity.
3. Severe fatigue.
4. Parkinson's disease.



Parietal Lobe **(Gall Bladder Meridian)**: Thinking and action are the domain of the **parietal lobe**. It produces **alpha waves (7-12 Hz) and the neurotransmitter acetylcholine**. Acetylcholine is a building block for the myelin sheath and therefore relates to the speed at which our brain functions and so determines our effective brain age.

1. **Produce acetylcholine and associated with alpha waves (7-12 Hz.)**
2. Balance frontal and parietal lobes.
3. Parietal lobe is the thought factory.
4. Helps brain understand and react to sensory signals from body.
5. Determine brain's speed and relative brain age.
6. Memory and language
7. Acetylcholine is also the principal neurotransmitter in all autonomic ganglia.
8. It has been suggested that acetylcholine disruption may be a primary cause of depression
9. ACh has also been shown to promote REM sleep.
10. Produces GABA.
    a. Brain's natural tranquillizer.
    b. Controls brain rhythm.
    c. Calm's mind and spirit.
    d. Affects your personality.
    e. Production of endorphins.
    f. Lubricant, necessary to keep the internal structures of the body moist so energy and information can pass.
    g. Building block for myelin, the insulation around neurons.
    h. Keeps signal from dissipating as it passes through neuron.
    i. Makes you creative and self-confident.

Lack of acetylcholine:

1. Language disorders
2. Memory loss.
3. Cognitive disorders
4. Learning disabilities
5. Alzheimer's

Temporal Lobe: Memory and language are governed by the temporal lobe, that sits just below the frontal and parietal lobes and balances their operation. It produces **theta** brain waves **(3-8 Hz)** and the neurotransmitter **GABA** (gamma amino butyric acid).

Loss of GABA:

1. Headaches
2. Hypertension
3. Palpitations
4. Seizures
5. Diminished sex drive
6. Disorders of the heart

Occipital Lobe **(Bladder Meridian):** The occipital lobe is at the back of our head. It controls our visual function, regulates our rest, and synchronizes all the cerebral lobes. It produces **delta** brain waves **(0.5-4 Hz)** and the neurotransmitter **serotonin**. Approximately 90% of the human body's total serotonin is located in the enterochromaffin cells in the GI tract, where it is used to regulate intestinal movements. The remainder is synthesized in serotonergic neurons of the CNS, where it has various functions:

1. Regulation of mood
2. Appetite
3. Sleep
4. Cognitive functions
    a. Memory
    b. Learning

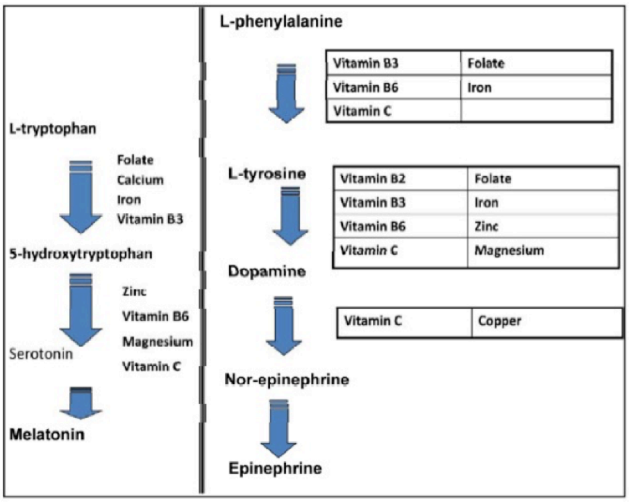
Lack of serotonin:

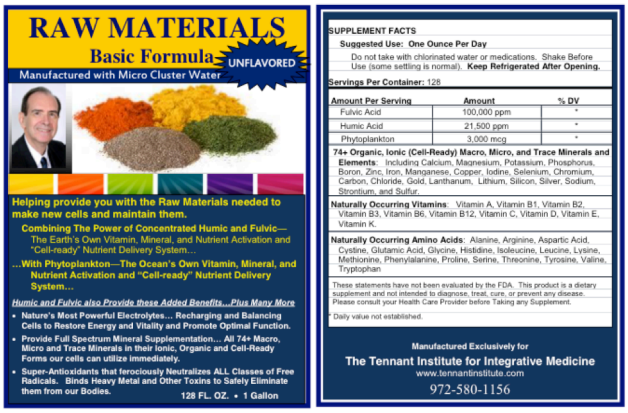
1. Depression
2. Hormonal imbalances.
3. PMS.
4. Sleep disorders.
5. Eating disorders.

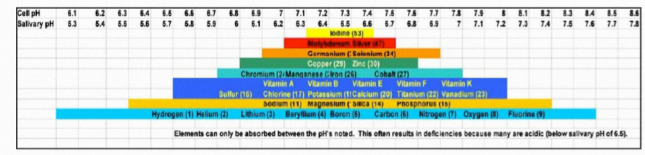
DEFICIENCY			
Dopamine	Acetylcholine	GABA	Serotonin
Loner	Eccentric	Unstable	Self-absorbed
Procrastinator	Perfectionist	Drama Queen	Rule-breaker

ATTENTION DEFICIT	
Symptom	Cause
Inconsistent attention	- Dopamine
Misplacing Items; careless	- Acetylcholine
Lack of attention; impulsive	- GABA
Can't grasp concepts quickly	- Serotonin

Neurochemical	Amino Acid Needed
Dopamine	Tyrosine
Acetylcholine	Phosphatidylserine
	Acetyl-L-carnitine
GABA	Glutamine
Serotonin	Tryptophan







Zinc Deficiency Symptoms (Stomach meridian)

1. Alcohol Intolerance
2. Disturbed sleep
3. Increased cholesterol
4. Asthma
5. Dry skin
6. Infertility
7. Belching
8. Ear infection
9. Itchy skin
10. Bloating
11. Early graying hair
12. Joint pain
13. Colitis
14. Eczema
15. Joint stiffness
16. Brittle nails
17. Fidgeting
18. Loss of libido
19. Bronchitis
20. Frequent sore throats
21. Low blood sugar (hypoglycemia)
22. Colds
23. Gastro-esophageal reflux (GERD)
24. Low white blood cell count
25. Conjunctivitis
26. Gastroenteritis
27. Lung infections
28. Delayed healing
29. Hair loss
30. Missed periods
31. Depression
32. Hay fever
33. Moodiness
34. Dermatitis
35. Hyperactivity
36. Pimples

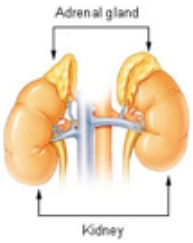
(Ovaries on Spleen Meridian) Estrogen unopposed by Progesterone blocks zinc, magnesium and vitamin B6 and leads to:

1. Increases in heart attacks and strokes,
2. Aging,
3. Anxiety,
4. Allergies,
5. Asthma,
6. Breast cancer,
7. Cervical cancer,
8. Cold hands and feet,
9. Decreased sex drive,
10. Dry eyes,
11. Endometriosis,
12. Fat gain around hips,
13. Fatigue,
14. Fibrocystic breasts (iodine deficiency),
15. Foggy thinking
16. Gall bladder disease,
17. Hair loss,
18. Headaches,
19. Hypoglycemia,
20. Increased blood clotting
21. Autoimmune disorders

Adrenals: (Spleen Meridian)

The adrenal glands are two glands in one. They should be thought of as two separate glands. The outer (cortex) part of the gland makes:

1. Cortisol
2. Aldosterone
3. Testosterone



Cortisol is a steroid hormone, more specifically a glucocorticoid, which is produced by the zone fascuculata of the adrenal cortex. It is released in response to stress and a low level of blood glucose. Its functions are to increase blood sugar through gluconeogenesis, to suppress the immune system, and to

aid the metabolism of fat, protein, and carbohydrate. It also decreases bone formation. Cortisol works with epinephrine (adrenaline) to **create memories** of short-term emotional events; this is the proposed mechanism for storage of flash bulb memories, and may originate as a means to remember what to avoid in the future. However, long-term exposure to cortisol damages cells in the hippocampus; this damage results in impaired learning. Furthermore, it has been shown that cortisol inhibits memory retrieval of already stored information.

Hydrocortisone is a name for cortisol when it is used as a medication. Hydrocortisone is used to treat people who lack adequate naturally generated cortisol.

Aldosterone: The biological action of aldosterone is to increase the retention of sodium and water and to increase the excretion of potassium by the kidneys. Because it affects the total amount of water in the vascular tree, it has its greatest effect on the systolic blood pressure.

Epinephrine (also known as **adrenaline, adrenalin**, or ß,3,4-trihydroxy-*N*-methylphenethylamine) is a hormone and a neurotransmitter. Epinephrine and norepinephrine are two separate but related hormones **secreted by the medulla of the adrenal glands.** The word adrenaline is used in common parlance to denote increased activation of the sympathetic system associated with the energy and excitement of the fight-or-flight response**.** Failure of the adrenal cortex, as with Addison's disease, can suppress epinephrine secretion as the activity of the synthesing enzyme, phenylethanolamine-N-methyltransferase, depends on the high concentration of cortisol that drains from the cortex to the medulla.

Making adrenalin requires tyrosine, vitamin C, vitamin B6, cortisol, and voltage in the spleen meridian.

Lack of adrenalin causes difficulty dealing with stress, poor memory, can't multitask, can't stand stimulus including loud noises, loud music, people arguing, and interruptions. You get to where you don't want to be touched and just want to sit and have people leave you alone. Your sexual equipment quits working. You can't go to sleep before eleven pm and still feel tired when you awaken the next morning.