Back To Chiropractic CE Seminars

Nutrition: Sugar and Insulin ~ 6 Hours

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This course counts toward your California Board of Chiropractic Examiners CE.
(also accepted in other states, check our website or with your Chiropractic State Board)

The California Board requires that you complete all of your CE hours BEFORE the end of your Birthday month. We recommend that you send your chiropractic license renewal form and fee in early to avoid any issues.

Exam Process: Please read all instructions before starting!

1. You must register/pay first. If you haven't, please return to: backtochiropractic.net

2. Open a new window or a new internet tab & drag it so it's side-by-side next to this page.

3. On the new window or new tab you just opened, go to: backtochiropractic.net website.

4. Go directly to the Online section. DON'T register again.

5. Click on the Exam for the course you want to take. No passwords needed.

6. Follow the Exam instructions.

7. Upon passing the exam you'll be able to immediately download your certificate, and it'll also be emailed to you. If you don't pass, you can repeat the exam at no charge.

   Please retain the certificate for 4 years.
   If you get audited and lose your records, I'll have a copy.

I'm always a phone call away... 707.972.0047 or email: marcusstrutzdc@gmail.com

Marcus Strutz, DC
Back To Chiropractic CE Seminars

Nutrition: Sugar and Insulin

Dr. Shirley Watson

Sequence of protocols

1. Sugar/insulin handling
2. Microbiome/digestion
3. Methylation
4. Thoughts and beliefs

In the United States today, the leading cause of death is drugs. Not street drugs, but prescription drugs!

Over 723,000 people die from prescription drugs per year,[1] many times more than the losses we incurred in the Vietnam war.

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1. Death by Medicine, Gary Null

Americans comprise 4% of the world's population, **yet consume 56% of the world's pharmaceuticals.**

If you are on a pharmaceutical for a long period of time, it's a sign that the doctor has given up!

Among the nations of the world,
the United States ranked 5th in life expectancy in 1950.
We are now 50th.

In 1965, the U.S. ranked 23rd in infant mortality;
we are now down to 35th.

There is now a 44% chance of getting cancer.

We now spend more for health care than we spend on food.

Male infertility has increased 70% in one generation!

American doctors prescribed HRT for 54 years, until the Women's Health Initiative determined that HRT increased cancer, heart disease and osteoporosis.

We do not want to practice allopathic nutrition!

Each patient is unique.

Listen carefully and they will tell you where their problems lie.

O-Ring Testing

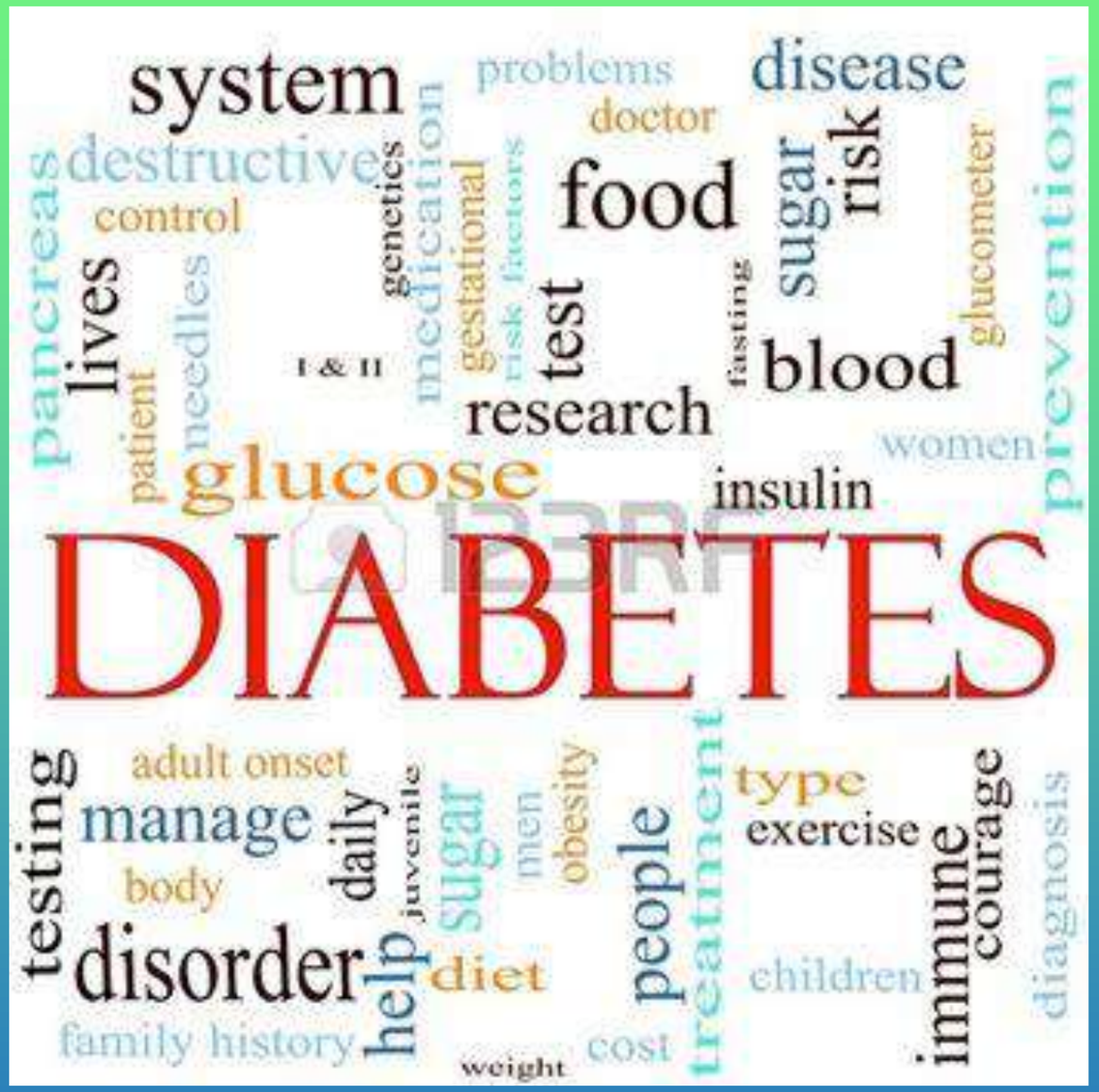
Bi-Digital O-Ring Test for Imaging and Diagnosis of Internal Organs of a Patient

Patent No. 5,188,107 Inventor: Yoshiaki Omura, 800 Riverside Dr., Apt. 8-1, New York, N.Y. 10032 Issued: February 23, 1993

The Sequence

I have found that when beginning the process of helping patients acheive a higher level of health, this particular sequence of focusing and processing works best:

1. Address sugar and insulin issues.
2. Handle digestion and microbiome issues.
3. Work on the methylation pathway.
4. Ongoing education to instill patients with healthy thoughts and beliefs.


system
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insulin
DIABETES
testing
adult onset
manage
daily
juvenile
sugar
men
obesity
people
treatment
type
exercise
immune
courage
diagnosis
body
disorder
help
diet
children
family history
weight
cost

One out of two children
13 years of age or younger
are pre-diabetic.

High insulin and blood sugar are the root cause of all disease!

Insulin is a hormone that is made in the beta cells of the pancreas.

- Its primary job is to store glucose for future energy needs.
- Sugar is first stored as glycogen in the liver and muscles.
- Once the muscles reach capacity, it is then stored as fat.
  - It takes 20 minutes of exercise to use up stored glycogen reserves before fat is burned for energy.

Diabetes

- There are over 30 million diagnosed diabetics and 86 million pre-diabetics in the United States.
- Both numbers are rising exponentially.
- The average American eats 200 pounds of sugar per year!

High blood sugar affects every organ in the body.

Pre-diabetes is just as destructive; it's just a matter of degree.

Insulin Resistance

- Also known as metabolic syndrome, syndrome X, or pre-diabetes.

- Insulin carries sugar into the cells to be made into ATP.

- Insulin stores magnesium, which relaxes muscles and controls the constriction of smooth muscles, especially blood vessels. An interruption in the flow of magnsium can cause hypertension (high blood pressure).

- Insulin also causes sodium retention, which may lead to hypertension.

If there is too much sugar in the blood, insulin becomes unable to put more sugar into the cells, so blood sugar levels rise and cells become insulin-resistant.

It takes many years for this process to occur.

The signal for the brain to release insulin is the presence of glucose in the diet. Consuming 200 pounds of sugar per year takes a severe toll on the pancreas, exhausting and potentially harming this vital organ.

High insulin levels also stimulate the sympathetic nervous system.

This will:

- Increase blood pressure
- Increase heart rate
- Constrict blood vessels
- Slow/stop digestion
- Cause weight gain
- Reroute blood away from internal organs
- Produce sweaty palms and perspiration
- Cause irritability

Glucose Works on Many Fronts

Because insulin is cell proliferating, it also causes cancer.

Glucose causes platelets to become sticky, which increases heart disease.

It interferes with thyroid function, especially the conversion in the liver of T4 to T3.

Buildup of plaque in the arteries from cell proliferation may lead to heart disease.

Alzheimer's is often called Diabetes III, as it is essentially the brain becoming insulin-resistant.

Statistics show that 13% of people will develop Alzheimer's before age 65, and 50% will be affected after age 85.

The primary brain is in the gut, and gut inflammation causes brain inflammation.

Alzhiemer's

In order to slow down this process, and in some cases even reverse it, the following list of supplements are recommended:

1. DHA
2. CoQ10
3. Fish oil
4. MCFA/coconut oil
5. Digestive enzymes and HCL
6. Vitamin D
7. No grains or sugars

MCFA are unique in that they are easily absorbed and metabolized by the liver, and can be converted to ketones. Ketone bodies are an important alternative energy source in the brain, and may be beneficial to people developing or already experiencing memory impairment, as in Alzheimer's disease.

The journal *Neurology* published an article describing the results of a study that confirmed a strong association between low levels of vitamin D and increased risk of dementia and Alzheimer’s disease in elderly people in the United States.

Amber Waves of Grain Gone Awry

Norman Borelaug

1960 created
1980 everywhere

In the late 1960s, American biologist Norman Borelaug was looking for a way to feed the masses. He created a hybrid form of wheat with a shorter stalk and up to 10 times the seed density of the original wheat he began with.

In 1970, Borelaug received the Nobel Peace Prize for his work.

This wheat was not tested to determine the effects on the human body.

How does this wheat compare to the wheat that man has consumed for about 10,000 years?

Einhorn wheat was the first wheat man harvested.
Emmer wheat was a natural offshoot of Einhorn wheat.

Neither of these contained the protein gliadin in the form we find it today.

Now, wheat differs by several proteins from that grown as recently as the 60s.

Today's gliadin can **cause changes in the brain by** crossing the blood-brain barrier and attaching itself to opioid receptors.

Leaky Gut

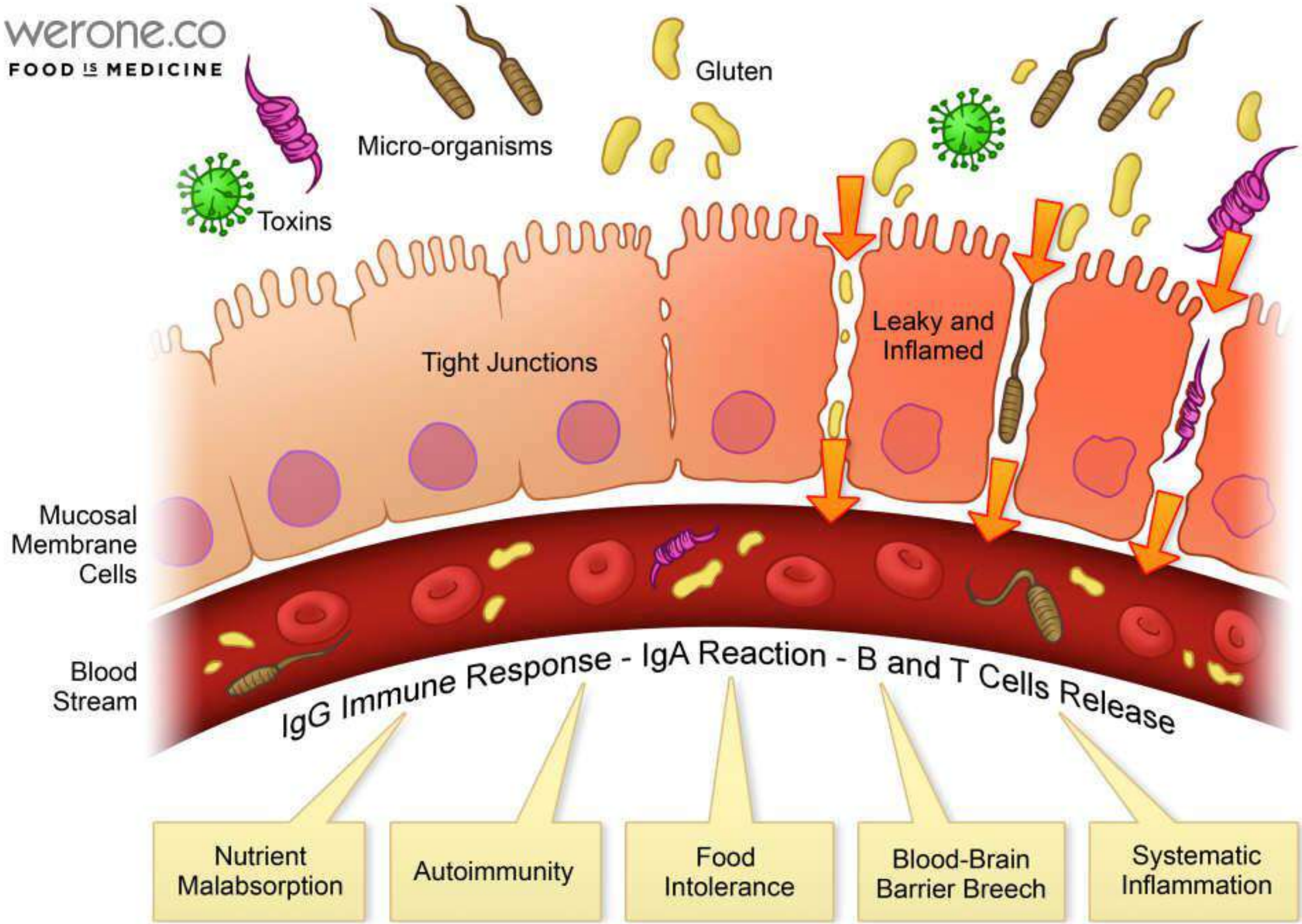
- Lectins
- Gliaden/Wheat

The lectins in the gliadin enter the gut and loosen the tight junctions between the cells, allowing large undigested particles to enter the bloodstream. This is known as “leaky gut syndrome.”

Vitamin D affects the tight junctions in the gut villi.

Lectins are a type of protein that can bind to cell membranes. They are sugar-binding and become the “glyco” portion of glycoconjugates on the membranes. They provide a way for molecules to stick together without getting the immune system involved, which can influence cell-to-cell interaction.

Leaky Gut is not a diagnosis.
It's difficult to test for, and is more clinical in nature.



Leaky Gut Syndrome

- Increases autoimmune disease
- Allergies
- Skin symptoms
- Ataxia
- ADHD
- Depression/brain diseases
- Candida and mold overgrowth linked to cancer

Researchers from the Bartholin Institute in Copenhagen, Denmark, explored the role of gliadin, a difficult-to-digest class of proteins within wheat, in weight gain and insulin secretion in both animal and cell models.

These studies found that gliadin-treated mice gained 20% more weight by day 100 than the gliadin-free control subjects, and that gliadin fragments induce insulin secretion in pancreatic beta cells, which are the cells responsible for producing insulin, and in which type 1 diabetes is destroyed or rendered dysfunctional.

The most destructive characteristic of this new wheat is its glycemic index of 72, which is higher than white sugar at 54!

The hybridized wheat:

- Exacerbates the manic phase of bipolar disease
- Causes increased ADHD
- Causes depression
- Increases appetite, resulting in an average additional daily intake of 400 calories

Low Blood Sugar

Symptoms:

- Shaking/tremors
- Anxious/anxiety
- Headaches
- Hunger
- Fatigue
- Sneezing
- Mood swings/crying/irritability
- Sweaty palms
- Loss of consciousness

- 70% of serotonin is made in the gut.
- If you wait too long to eat, serotonin is decreased.
- Decreased serotonin will cause depression.
- Increased cortisol and adrenalin also cause depression.
- Brain and neurotrophic issues respond quickly to the removal of gluten from the diet.

Testing

Most doctors test blood glucose. It takes years for this number to stay high.

AbA1c tests red blood cells. Glucose attaches to red blood cells, which live about 120 days. An A1C is optimum at 5.4 or less.

Fasting insulin is the most effective test; it will catch the process much faster than the other two. The normal range is 5-25, but it's best to be at less than 10.

There is not an organ in the body that is spared from the ravages of high glucose and its counterpart, high insulin.

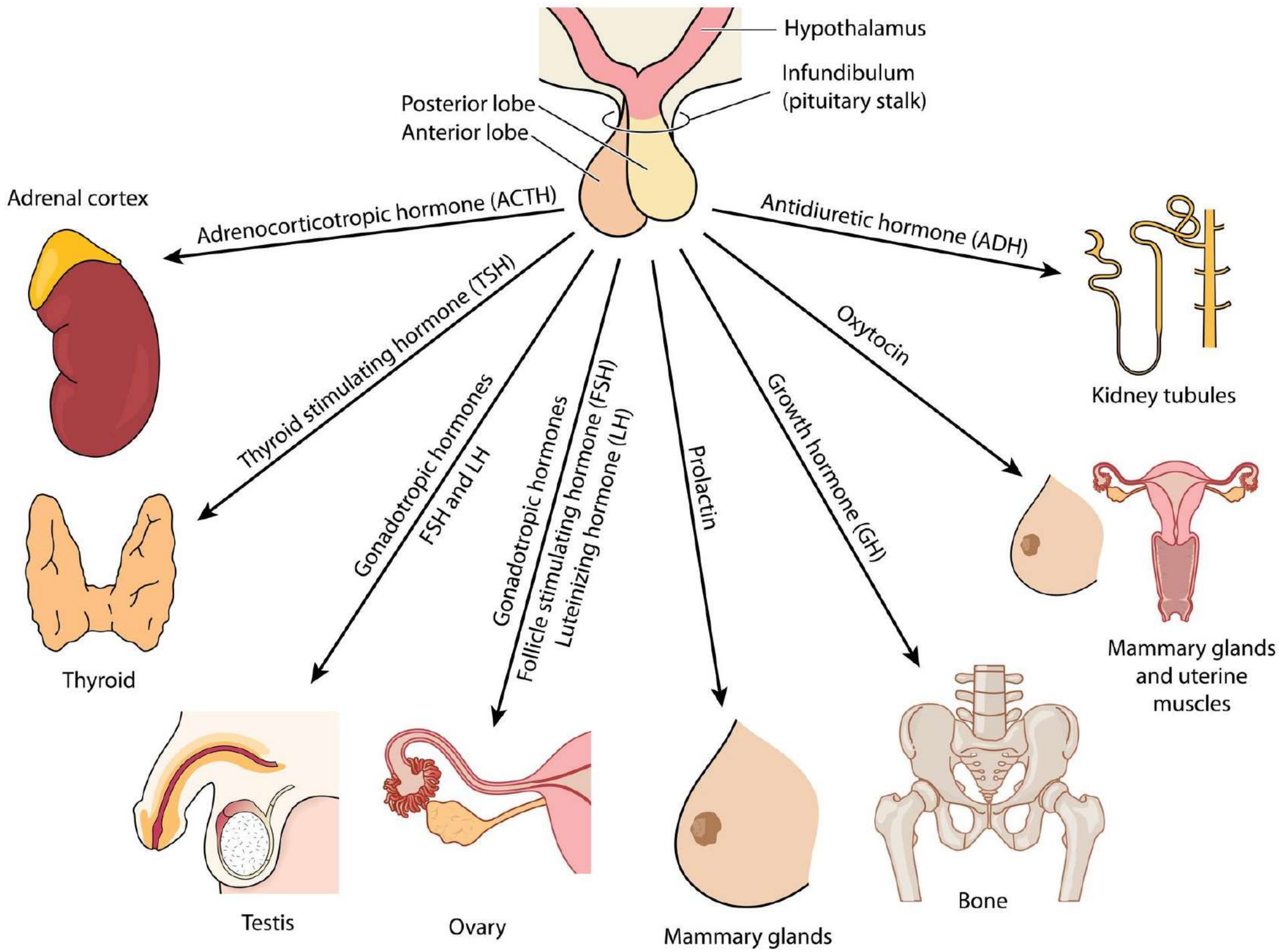
Adrenals

The adrenals sit atop the kidneys and have two parts, the cortex and the medulla.

The hypothalamus communicates with the pituitary, which communicates with the adrenals in a closed-feedback loop.

Everything is connected

Nothing works in isolation



The feedback loops in the body are all affected by diet, stress, sleep and thoughts.

In today's world, life is 24/7 and everything needs to happen NOW!

If you then add an accident, divorce or death to the mix, as well as food allergies, toxic relationships, EMF's and events like Paris, your stress level exceeds the body's capacity to handle it.

Cortisol plays a part in:

- Digestion
- Blood Pressure
- Sleep/wake cycles
- Sugar-handling
- Coping with stress
- Energy levels
- Anti-inflammation
- Hormones
- Thyroid function

- Stress increases cortisol levels, which can cause depression. Adrenal stress may be the main cause of depression.

- Cortisol controls sugar, and Alzheimer's is related to sugar-handling. In fact, in some circles, **Alzheimer's** is being called "Diabetes type III".

- Sex hormones decrease as cortisol levels increase.

By the time you notice the first signs of memory loss, the process has been ongoing for 30 years.

- A women cannot get pregnant with adrenal fatigue.

Increased cortisol:

- Increases belly fat
- Increases hunger due to sugar issues
- Causes insomnia, waking up between 2-3 AM because the glucocorticoids cause blood sugar levels to crash
- Causes bone loss
- Causes PCOS (cysts on ovaries) (Insulin resistance in ovaries)
- Interferes with the conversion of T4 to T3
- Results in high blood pressure
- Increases fatigue

- Cortisol is excreted through the urine; high amounts can lead to prostatitis and chronic cystitis.

In order to lower high cortisol levels, avoid:

- Caffeine
- Alcohol
- Sugar
- Late nights
- Drugs
- Mental stress
- Grains

Add:

- Magnesium
- Vitamin C
- Phosphatitylserin, to aid performance and memory
- Grapefruit juice
  (Contraindicated if using any drugs, i.e., statins, antihistamines, CCB and/or pain meds, to name a few).

Grapefruit is an easy source of energy, containing B vitamins, potassium, iron and calcium.

Mix lemon juice and grapefruit juice in equal proportions; drink daily to help get rid of chronic adrenal fatigue.

Licorice (Glycyrrhiza Glabra)

(contraindicated if pregnant, have high blood pressure or heart disease; can use de-glycerized)

Licorice improves the immune system and boosts adrenal function. Thus, it helps relieve the weaknesses of mind and body.

Vitamin B

- Lack of pantothenic acid and vitamin B can lead to extreme fatigue
- Deficiency of vitamin B results in exhaustion of adrenal glands
- 30 mg of pantothenic acid is daily required for keeping the body energetic

B complex Vitamin group:

- Protects the nerves
- Nourishes and regulates glands

Rice, wheat germ, liver and brewer's yeast are all foods rich in vitamin B.

- Meditation
- Five consecutive hours of sleep; each hour of sleep before midnight is as effective as two hours of sleep after midnight
- Exercise

Low cortisol is an indication of adrenal fatigue

- Long-term exposure to stress hormones will cause insulin resistance
- “Feed me now” means low adrenal function
- Most joint pain stems from adrenal fatigue

Low cortisol patients usually have low blood pressure

<u>Orthostatic hypotension</u>

A drop of 20 mm Hg in systolic blood pressure or a drop of 10 mm Hg in diastolic blood pressure within two to five minutes after standing up from a seated position.

Low Cortisol

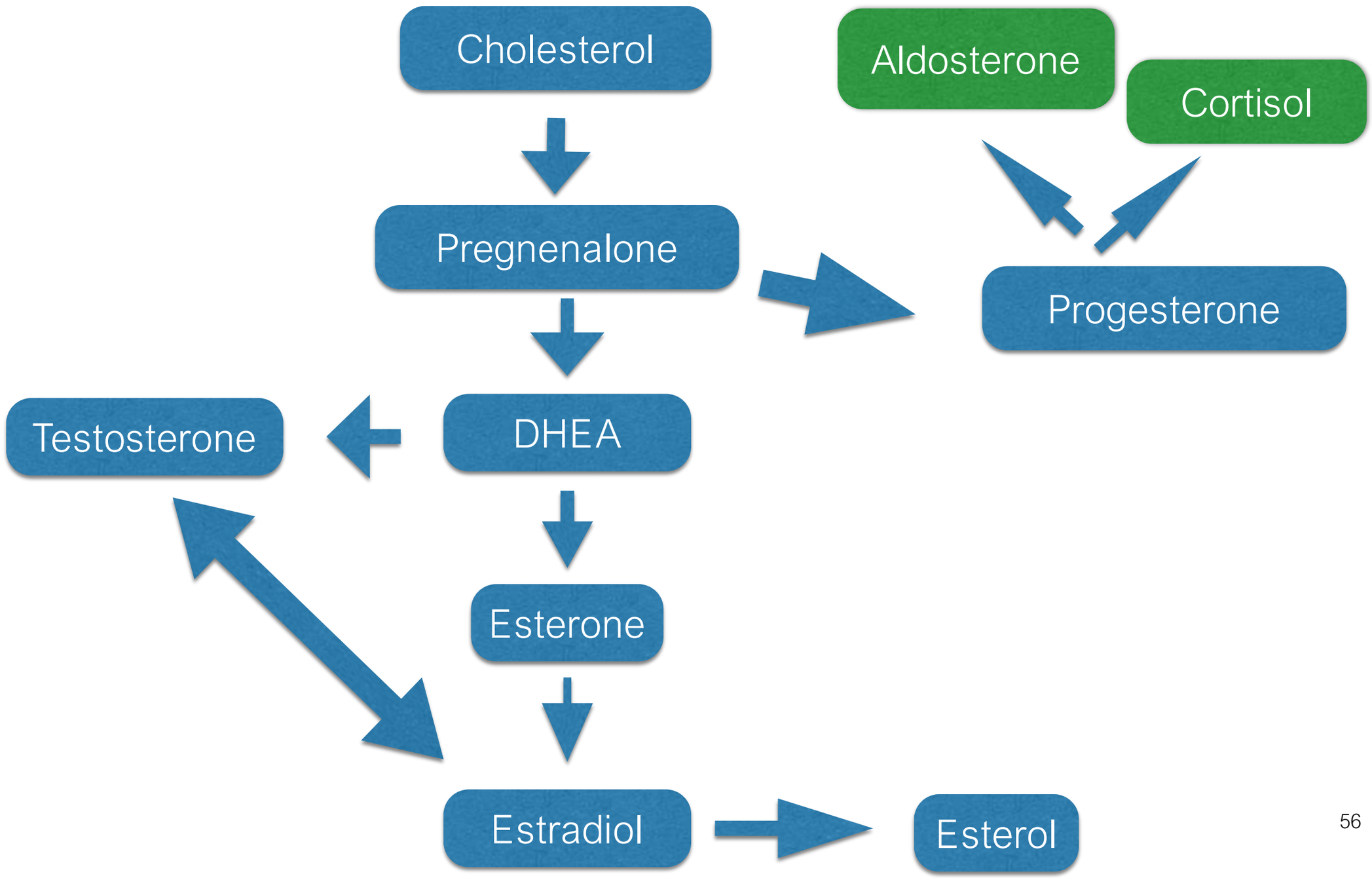
- CFS
- Bone loss
- Fibromyalgia
- Edema
- Fatigue
- Sleep issues
- Skin rash

35% of sex hormone production is taken over by the adrenals after menopause.

Fix the adrenals first; bio-identical hormone supplementation should be the last resort.

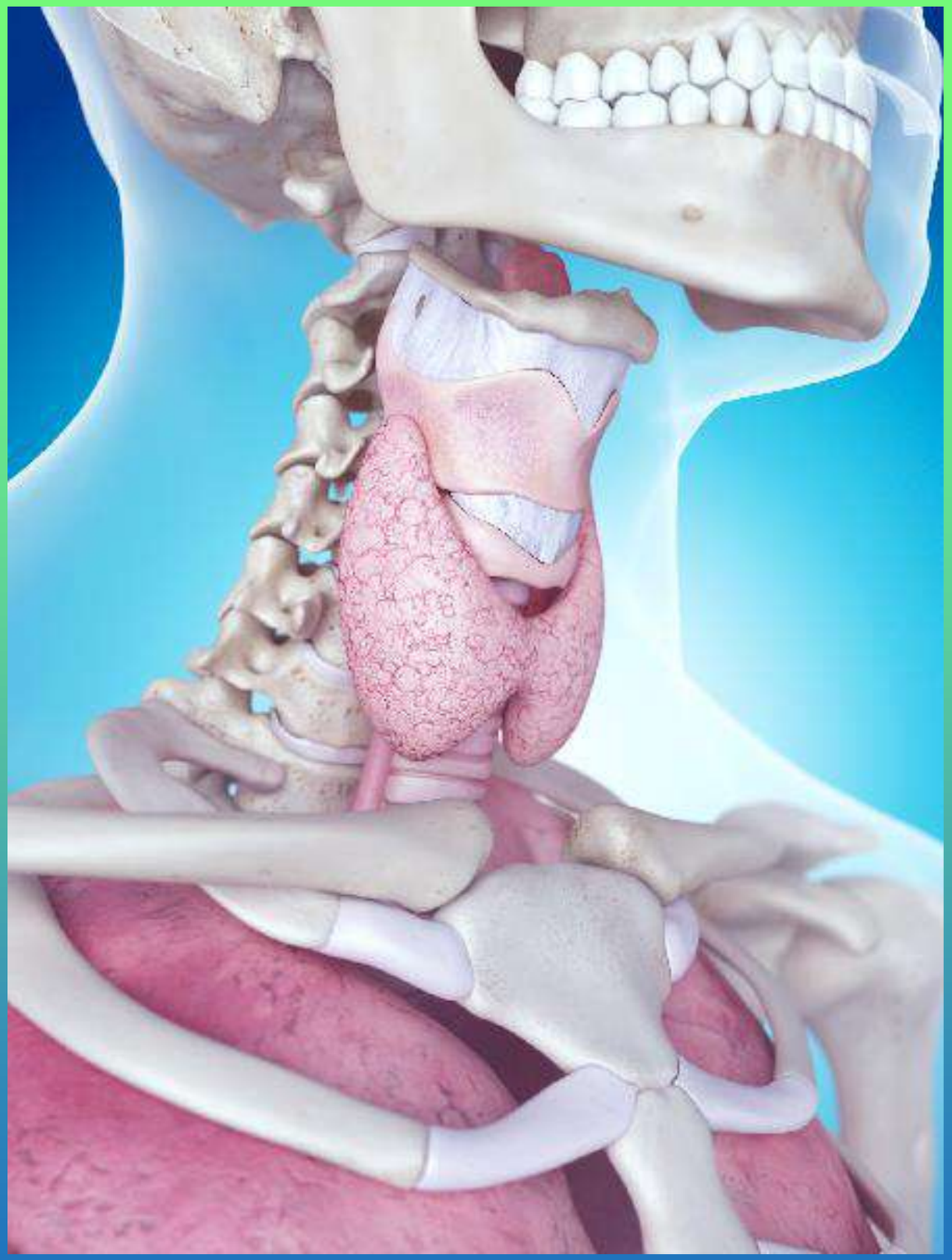
Sex Hormones and Cortisol

- Progesterone Steal Syndrome



Thyroid

Also affected by sugar/insulin and adrenal function



The thyroid is very sensitive to corticoids and will inhibit TSH and the conversion of T4 to T3.

Blood tests for thyroid include:

- TSH
- T3
- T4
- Free T3
- FreeT4
- rT3
- Thyroid globulin
- Thyroid antibodies

The level of free T4 hormone illustrates how much is immediately available for uptake and use by cells, and the measure of free T3 hormone in the body is considered a more accurate view of hormonal balance than a total T3 reading.

The thyroglobulin test is primarily used as a tumor marker to evaluate the effectiveness of treatment for thyroid cancer and to monitor for recurrence. Not every thyroid cancer will produce thyroglobulin, but the most common types, the well-differentiated papillary and follicular thyroid cancers, frequently do, resulting in increased levels of thyroglobulin in the blood.

Thyroid peroxidase antibody (TPO) is the most common test for autoimmune thyroid disease. It can be detected in Graves' disease or Hashimoto thyroiditis. Thyroglobulin antibody (TGAb) targets thyroglobulin, the storage form of thyroid hormones.

The thyroid needs:

- Iodine
- Selenium
- B vitamins
- Vitamin C

Iodine is needed in the breasts, ovaries, uterus and thyroid.

If iodine levels are low, you will see fibrocystic breast disease.

Seaweed is a good source of iodine.

The thyroid is the only organ that stores its own hormone.

Foods That Block Thyroid

Soy and cruciferous vegetables

They cause trypsin Inhibition. First among them are potent enzyme inhibitors that block the action of trypsin and other enzymes needed for protein digestion.

These inhibitors are large, tightly folded proteins that are not completely deactivated during ordinary cooking. They can produce serious gastric distress, reduced protein digestion and chronic deficiencies in amino acid uptake. In test animals, diets high in trypsin inhibitors caused enlargement and pathological conditions of the pancreas, including cancer.

Soybeans also contain haemagglutinin, a clot-promoting substance that causes red blood cells to clump together.

Any stress that affects the adrenals will increase cortisol, which will decrease active thyroid.

- Synthroid and Levothyroxin only affect TSH.

Every person is an individual.

Don’t use the “shotgun” approach!

Neuroscience Comprehensive Testing

This is a saliva test that is taken throughout the day and night to test hormones, neurotransmitters, cortisol and steroid hormones.

Microbiome

There are 100 trillion microbiota cells in the gut, which is 10 times the number of cells found in the human body.

Microbiome = Digestion

According to Dr. Russel Jaffe:

"Good bugs crowd out bad bugs and not the other way around."

Three things are needed to have a healthy microbiome:

- Fiber/pre-biotics: 40-100 grams per day
- Probiotics: 40-100 billion per day
- Glutamine: 1.5 grams, 3-4 times per day. Too much at once can form glutamate, causing inflammation. Glutamine is a very effective intestinal and immune system health compound, as gut cells use glutamine as their preferred fuel source rather than glucose.

The Human Microbiome

Microbes interact in communities, and they respond to their surroundings. Just like organisms in Earth's ecosystems, our microbial populations shift when their environment changes.

The microbiome can influence the food choices we make by causing cravings for the foods they need.

What affects the microbiome?

- Low HCL
- Drugs and chemicals
- Poor food choices/sugar
- Low intake of probiotics
- Stress

All of the above, especially drugs, interfere with organ function.

More than 50% of all autistic children have GI symptoms, but this can be said for all neurodegenerative disorders.

Some of the most intriguing work has been done on autism. For decades, doctors, parents and researchers have noted that about three-quarters of people with autism also have some gastrointestinal abnormality, like digestive issues, food allergies or gluten sensitivity.

This recognition led scientists to examine potential connections between gut microbes and autism; several recent studies have found that autistic people's microbiome differs significantly from control groups.

The California Institute of Technology microbiologist Sarkis Mazmanian has focused on a common species called Bacteroides fragilis, which is seen in smaller quantities in some children with autism. In a paper published two years ago in the journal *Cell*, Mazmanian and several colleagues fed B. fragilis from humans to mice with symptoms similar to autism. The treatment altered the makeup of the animals' microbiome, and more importantly, improved their behavior becoming less anxious, communicating more with other mice, and showing less repetitive behavior. When gut bacteria change, brain function also changes. (By David Kohn)

So far, most microbiome-based brain research has been in mice. But there have already been a few studies involving humans.

In recent years, for example, researchers transferred gut bacteria from anxious humans into “germ-free” mice—animals that had been raised (very carefully) so their guts contained no bacteria at all. After the transplant, these animals also behaved more anxiously.

Research demonstrates, according to Dr. Joel Dore, that "microbiome diversity is low in North America…"

This microbial "interacts with food and with human cells" far beyond the gut.

The microbiota can be modulated by diet or fecal microbiota implants (clostridium difficile) currently for immune disorders

Dysbiosis in the gut is seen in IGD, obesity, Crohn's disease, insulin resistance, dyslipidaemia and inflammation.

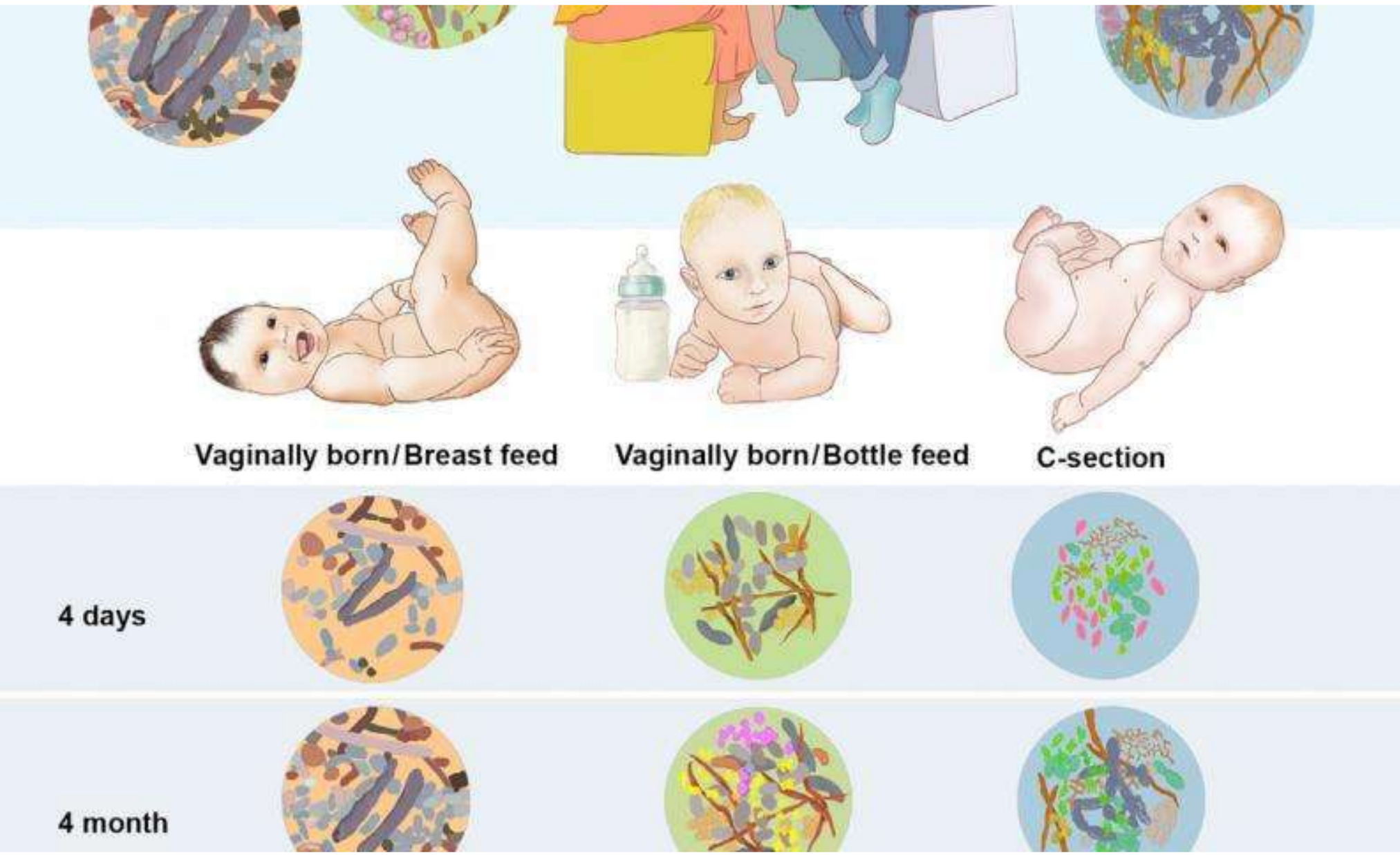
Obese patients have different gut bacterial gene counts and different species than those who are not obese. This is indicative of "poor response to nutritional intervention."

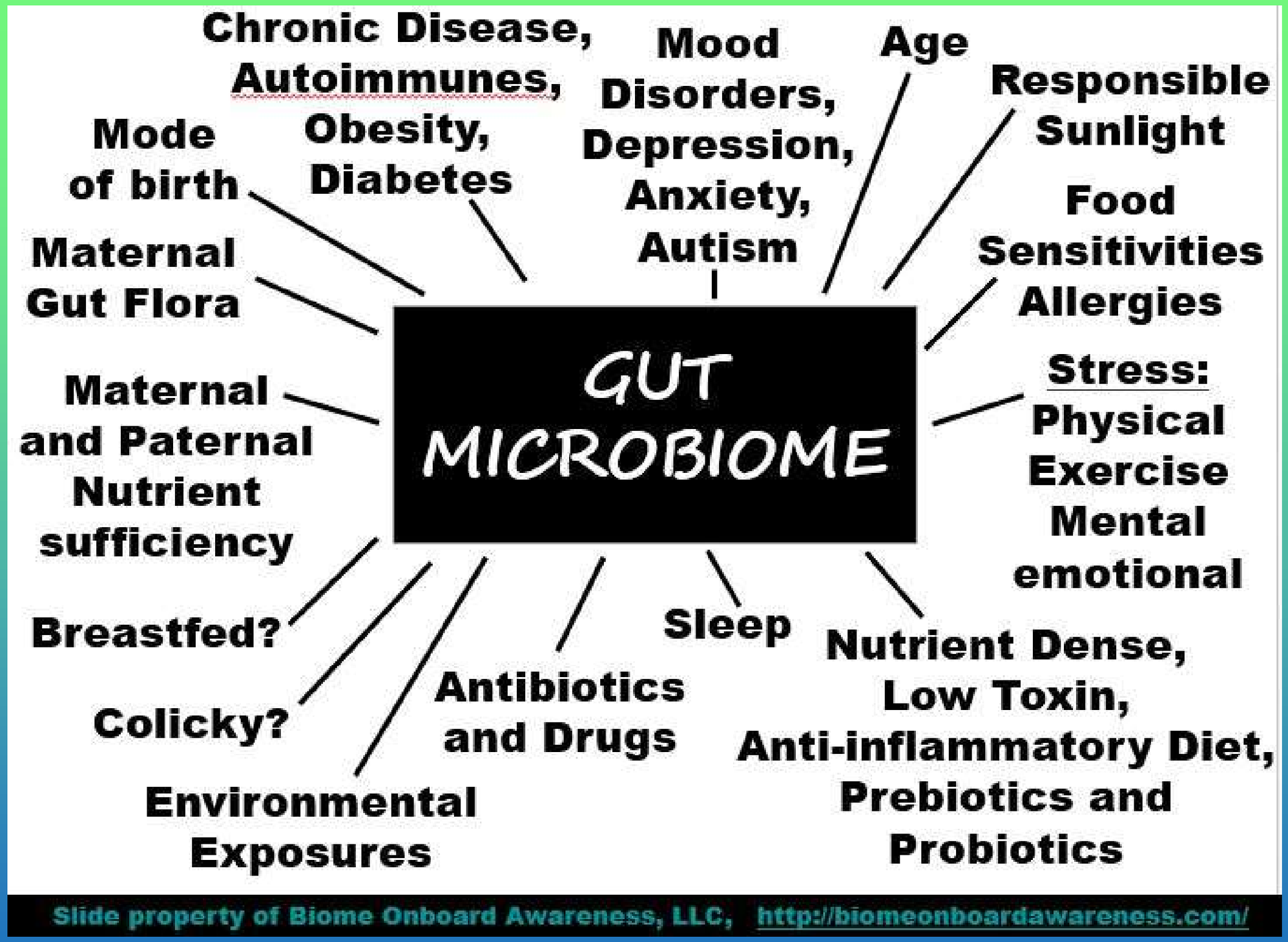
The colonization of the gut flora begins at birth and is determined by a number of factors:

- The length of gestation. Premature births have less colonization
- Nutrition of both parents at conception
- Mother's microbiome quality
- Whether breast or bottle-fed, flora are transferred from the mother's skin
- Over-hygienic parents
- Low bacterial diversity, delaying maturation of the mucosal immune system, predisposing children to allergens and associated illnesses

Microbiata is passed on to the baby during birth, through the birth canal, skin and feces.

How the baby is delivered and fed after birth matters!




GUT MICROBIOME
Chronic Disease, Autoimmunes, Obesity, Diabetes
Mood Disorders, Depression, Anxiety, Autism
Age
Responsible Sunlight
Food Sensitivities Allergies
Stress: Physical Exercise Mental emotional
Nutrient Dense, Low Toxin, Anti-inflammatory Diet, Prebiotics and Probiotics
Sleep
Antibiotics and Drugs
Environmental Exposures
Colicky?
Breastfed?
Maternal and Paternal Nutrient sufficiency
Maternal Gut Flora
Mode of birth
Slide property of Biome Onboard Awareness, LLC, http://biomeonboardawareness.com/

- Stress deprives the stomach and internal organs of oxygen. With no oxygen, you cannot digest your food.

- Stress moves blood from the core to the extremities.

- Stress causes pathogenic bugs to grow 10,000 times faster, creating a dysbiosis in the gut, i.e., Candida overgrowth being fed by adrenaline as well as sugars.

- Stress reduction techniques: meditation, exercise/movement, balance in work and play, faith and friends.

Telomere shortening:

a compound structure at the end of a chromosome

Aging of the brain can be measured

The brain-aging process has been proven to be reversed by such deep relaxation techniques as meditation, deep breathing and other relaxation techniques.

Estrogen is converted in the liver and moved into the bile for elimination from the body. These organs need to be healthy to do their job.

- Mental stress will stop the removal of estrogen from the body
- This will increase estrogen-sensitive cancers
- Men are not excluded from this
- Gallbladder and liver are dependent on methylation to function properly
- Making bile is methylation-dependent

Increased estrogen is the main cause of gallbladder disease.

When estrogen goes up, methyl groups go down, causing bile to thicken.

Gallbladder removal is one of the top 10 surgeries in the United States.

The gallbladder is almost always able to be saved!

The microbiome correction may be associated with the resolution of insulin resistance.

This is why above all else insulin issues are dealt with first.

Remember: the genes of the microbiome speak to the genes of the human. This is called “cross-talk.” When the communication is altered, intestinal ecology may contribute to chronic health conditions.

All Disease Starts in the Gut

There are 10 times more bacteria in the gut than there are cells in the body.

Biofilms are communities of pathogenic bacteria living in the gut, hiding behind these films. Biofilms create a barrier/film between the gut wall and the food source, essentially starving the system of nutrients.

There are ways to eliminate these biofilms: laser, sulfur supplements and food. Additionally, adding probiotics to the gut will increase clarity, learning and neuroplasticity. The gut is actually the first brain.

All Disease Starts in the Gut

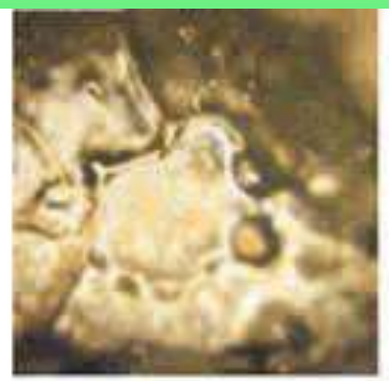
- A healthy relationship with the gut organ is important for health.
- Toxins are not produced by the gut bugs until they die. It is the rotting corpus and the toxins they release that create the problems.
- The gut is where the main components of the immune system live.
- The gut contains the second-largest pool of neuro cells.

According to Dr. Joel Dore
Research director for INRA, France

- There is a cross-relationship between microbiome and human genome that impacts endocrine, neural and immune functions. (The DNA of the gut flora affect the DNA of the human cell.)
- The microbiome is a true organ that protects us through all life stages, and consumes us when we die.

Water - H_2O

- Because the body is an electrical system that requires water, we need to hydrate, especially when taking supplements. Certain minerals create an electrical charge that is mediated in water.
- Drink water with your meals. Our digestive juices were designed to work in water.
- Water carries information as demonstrated by Dr. Emoto's work with water.

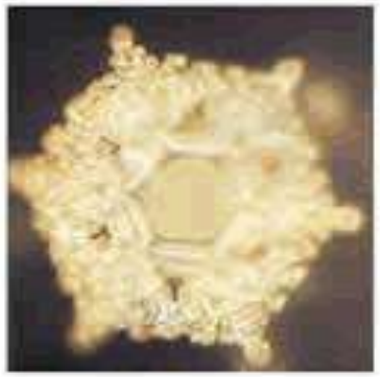


Water Molecule,
Before Offering a Prayer

Water Molecule,
After Offering a Prayer

Thank You

You Make Me Sick,
I Will Kill You



Love and Appreciation

SIBO
Small Intestine Bacterial Overgrowth

This occurs only when there is a hospitable host.

Causes:

- Antibiotics killing off good bacteria
- Stress hormones impairing digestion
- Diet: sugar/soda/grains
- Drugs and chemicals
- Beliefs

Breath Test for SIBO

A breath test measures both hydrogen and methane production as the digestive process proceeds. Accurate analysis of these gases can be used to assist in the diagnosis of several conditions that can cause gastrointestinal symptoms.

- When dealing with digestive issues, rule out blood sugar problems first.
- Low blood sugar will release glutamate into the brain and will cause brain fog.
- One must eat every 3-4 hours to heal the adrenals and the brain.
- Sleep five consecutive hours; every hour of sleep before midnight is worth two hours of sleep after.
- When adrenalin is released, it will cause the pancreas to release glucagon which will eventually overstress the pancreas.
- When glucagon is increased, HCL is decreased with low blood sugar and will shut digestion down.

Glucagon is a peptide hormone, produced by alpha cells of the pancreas, that raises the concentration of glucose in the bloodstream. Its effect is opposite that of insulin, which lowers the glucose concentration.

Reece J, Campbell N (2002). Biology. San Francisco: Benjamin Cummings. ISBN 0-8053-6624-5.

Sources of Probiotics

Ferments:

- Kiefer
- Yogurt
- Kimchi
- Sauerkraut
- Supplements

Unprocessed Fiber Sources

All food that you need to chew.

- Vegetables and fruits
- Nuts and seeds
- Real food (nothing from a box or can)
- Beans

Cholesterol

75% of your cholesterol is made in your liver.

If you decrease the amount of cholesterol in your diet, your liver will increase its production!

We need cholesterol!!!

In 1961, Dr. Ansel Keys conducted the “Seven Country Study,” demonstrating that saturated fat consumption leads to heart disease.

In this study, he purposely excluded countries where his hypothesis did not work, like France, where lots of saturated fat is consumed but there is no increase in heart disease.

Cholesterol is involved in:

- Immune system
- Nerve conduction
- Muscle contraction
- Hormone production
- Vitamin D
- Cell membranes (50% protein, 50% cholesterol)
- Oxidative stress protection
- Memory

25% of the body's cholesterol is in the brain.

LDL's and HDL's are not cholesterol!

They both *contain* cholesterol. LDL carries fat-soluble products into the cell, then HDL comes along to carry the LDL back to the liver as a small lipoprotein.

When there is too much sugar in the blood, it will attach to the LDL. This is called *glycation*. HDL cannot attach to the LDL, so macrophages come in to help out. LDL is then stored in the lining of the arteries, creating atherosclerosis. HDL cannot carry the LDL back to the liver.

Like the lipid profile, the VAP test works by spinning a blood sample to separate lipids by weight.

The VAP test categorizes LDL cholesterol by relative size, and also breaks HDL cholesterol down into subclasses. Current research indicates that certain patterns of LDL particle sizes may indicate a greater risk for the development of heart disease. Additionally, one subclass of HDL, HDL2, is considered to be particularly heart-protective.

The VAP test also measures some blood lipids that the current lipid profile ignores, such as very low density lipoprotein (VLDL); intermediate-density lipoprotein (IDL); and lipoprotein(a) [Lp(a)].

Low Cholesterol

You cannot make hormones if your cholesterol is too low.

Low cholesterol can be an indicator of chronic stress.

Low Cholesterol

Lowered pregnenolone & progesterone:

- Increased period length
- PMS
- Insomnia
- Regulates heart rate (arrhythmia)

Increased estrogen:

- Cancer
- Weight gain
- Increased blood clots
- Increased gallstones

Increased androgens:

- Increased hair growth (facial hair on women)
- Ovarian cysts
- Skin issues
- DHEA should go up as cortisol goes down

- DHEA supplementation must be monitored very closely; it can drive estrogens and testosterones and cause inflammation and cancer.

Decreased testosterone:

- Decreased energy
- Brain fog
- Decreased sex drive

Statins

Statins interfere with the enzymes in the liver that make cholesterol. These enzymes also make CoQ10.

CoQ10 protects us against heart disease..

Studies do not show that statins save lives.

The lowering of CoQ10 increases the risk of heart problems!

Statins have caused increased memory problems.

Statins also contribute to hormone imbalances because cholesterol is needed to produce all hormones.

Liver

Detoxification Pathways

TOXINS (fat soluble) → PHASE 1 → PHASE 2 → WASTE (water soluble)

PHASE 1 NUTRIENTS:
- B vitamins
- Folic acid
- Fat soluble vitamins A & D
- Antioxidants:
  - Vitamins C
  - Vitamin E
  - Milk thistle
- Calcium
- Glutathione

(think fruits & root veggies)

PHASE 2 NUTRIENTS:
- Amino acids:
  - Glycine
  - Taurine
  - Glutamine
  - Cysteine
- Sulfur

(think proteins, especially bone broth, gelatin, eggs & fish)

WASTE → ELIMINATED VIA:

ELIMINATED VIA: → GALLBLADDER → BILE → BOWELS

ELIMINATED VIA: → KIDNEYS → URINE

Butternutrition.com

Liver Detoxification Pathways

The liver is the primary director in our body, enabling the thousands of chemicals and toxins we are exposed to each day to be removed from our system.

However, this process occurs other places as well, especially at the cellular level.

This is done in a three phase process...

Phase I

Fat-soluble toxins enter the liver to be converted via Cytochrome p450 into water-soluble metabolites to either be excreted from the body or stored in the fat cells to protect the body.

This process creates oxidative stress and requires the following antioxidants to help minimize the oxidative damage:

- Beta-Carotene
- Vitamin A
- B vitamins (including B12)
- Vitamin C
- Vitamin D
- Vitamin E
- 5 Methyltetrafolate
- Glutathione

In Phase 1, the metabolites that are created from breaking down the fat-soluble toxins may be more toxic, but less active than the original toxin. An OH is added making them water soluble.

More important than the toxins we are exposed to, because we are all exposed to a myriad everyday, is our body's ability to effectively conjugate and remove toxins from our bodies.

The liver filters toxins from the blood and then dumps them into the small intestine, re-introducing toxins into the GI tract.

If there is enough fiber in the diet, these toxins will be caught in the fiber and passed into the bowel.

Smaller toxins pass into the blood and are carried to the kidney for removal, or sweated out through the skin.

Phase II

The conjugation phase is when the more toxic metabolites attach to amino acids and are conjugated via the cytochrome P450 enzyme into water-soluble toxins.

If Phase II is not effective, the metabolites will be stored in the fat tissues. If the person is lean, the toxins will store in the connective tissue.

Conjugation Pathways

- Methylation
- Sulfation
- Glutathione conjugation
- Glucuronidation
- Acetylation

In phase 2, we are attempting to rid the body of the hydrolated derivatives of Phase 1, where an OH was added to turn fat-soluble toxins into water-soluble derivatives.

This is done in a number of ways, determined by the toxin.

Foods that stimulate glutathione pathway:

- Spinach
- Onions
- Garlic
- Broccoli (especially sprouted)
- Celery
- Watercress
- Rosemary (high in iodine)
- Lemon grass

- The glutathione pathway also needs zinc and NAC (N-acytel-cystine)
- NAC locks on to the toxin so it can be passed through the small intestine or the urine.
- NAC is not found in food; it is made in the body.

- WARNING: DO NOT GIVE BEFORE ANESTHESIA!
  You will wake up during the surgery.
- NAC can be given in supplement form to help in the recovery of anesthesia and other drug reactions.
- It is also a chelator of metals, especially mercury.
- Mucelitic agent as well, post viral cough.
- WARNING: DO NOT TAKE LONG TERM (1-2 months)
  It will also chelate zinc, iron and copper.

Sulphation rids the body of acetone, DDT/DDE, ethyleneglycol (antifreeze), fluorine, toluene and TRIC (dry cleaning)

Foods that support sulphation include:

- Broccoli
- Asparagus
- Garlic
- Mustard
- Dill
- Horseradish
- Cabbage
- Sting nettle
- Parsnips

Sulfating also requires:

- Alpha Lipoic Acid
- Vitamin C
- MSM
- Cystine
- Molybdenum

Glucuronidation rids the body of hormones, neurotransmitters and benzoic acid.

Foods that support glucuronidation include:

- Cashews
- Artichokes
- Licorice
- Flax
- Alfalfa

Acetylation rids the body of petroleum products, newsprint and hypoclorite (bleach).

Foods that support acetylation include:

- Endive
- Watercress
- Cucumber
- Tomatoes
- Peas

One substance that supports and stimulates both Phase 1 and Phase 2 of detoxification is turmeric.

- Turmeric is an antioxidant, so it protects against the toxic metabolites made in Phase 1 and it stimulates the enzymes in Phase 2.
- It stimulates chytocrome P450.
- Turmeric is not easily absorbed in the body alone, but it is potentiated when black cumin seeds are taken with it.

The distinction between detoxification and drainage

Detoxification is the releasing of toxins
from their binding sites and their elimination.

Drainage is the process of taking the toxin from the cell to its final elimination. If this is not accomplished, the toxin is re-absorbed into the blood and the process begins again. This is known as the “Toxic Ping-Pong Effect”.

Some of the consequences of inadequate liver clearing:

- Skin conditions
- Bloating after eating
- Swelling
- Constipation/diarrhea
- Hormone aberrances
- Weight gain or loss
- Sensitivity to smells
- Sensitivity to chemicals

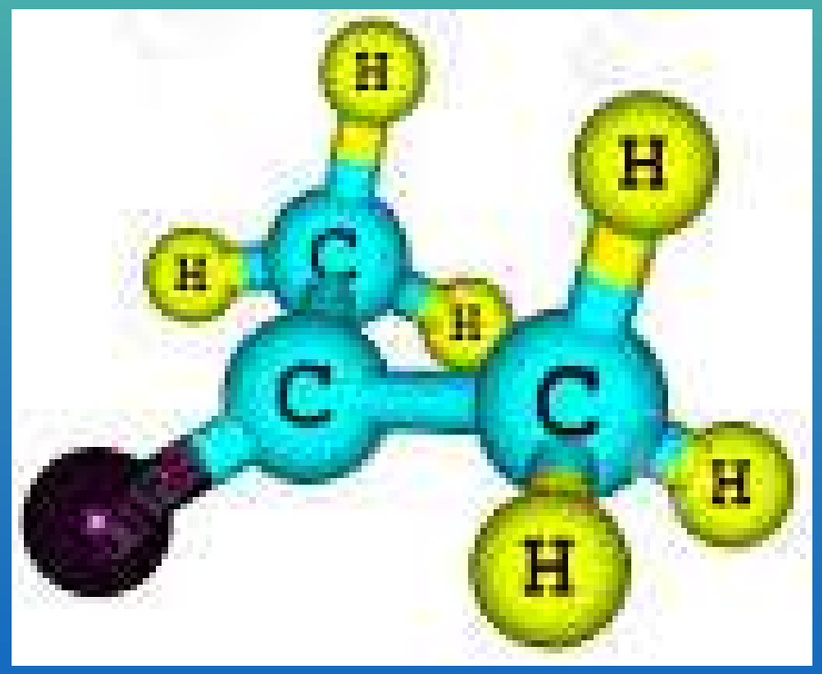
Methylation

This is a metabolic process happening constantly in the cell.

Donates

Molecule → Molecule

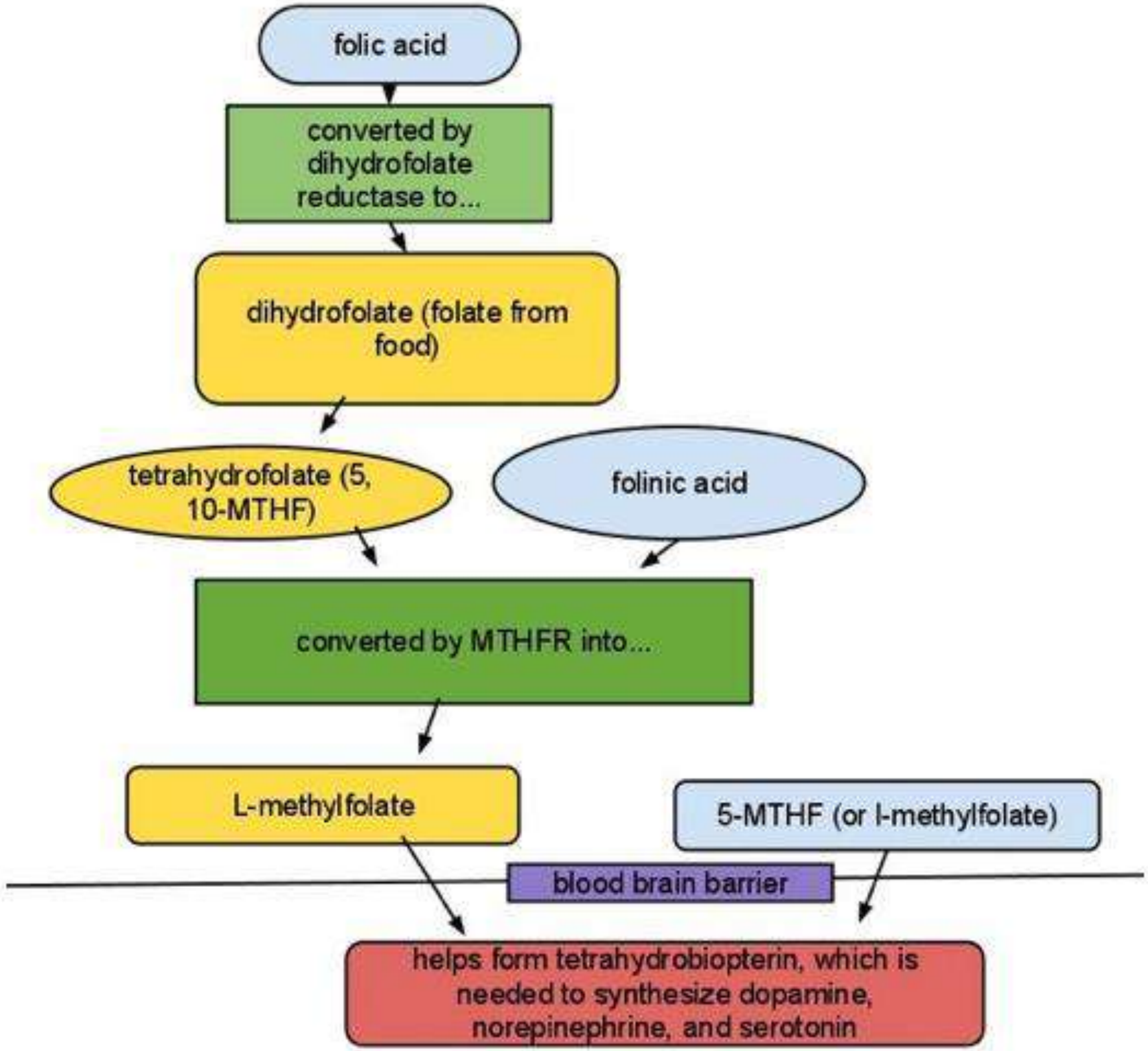
CH3



Nutrients needed for optimum methylation:

- Choline (low choline will damage the brain)
- Taurine
- HCL
- Methylfolate (low folate leads to choline deficiency)
- B12
- Sam e

HCL, methylfolate and B12 will donate methyl groups to the cell, while Sam e is needed for the methylation pathway.


folic acid
converted by dihydrofolate reductase to...
dihydrofolate (folate from food)
tetrahydrofolate (5, 10-MTHF)
folinic acid
converted by MTHFR into...
L-methylfolate
5-MTHF (or l-methylfolate)
blood brain barrier
helps form tetrahydrobiopterin, which is needed to synthesize dopamine, norepinephrine, and serotonin

Methyl groups make important substances in the body like CoQ10, choline, carnatine, sulfur, taurine, and ATP

They affect fundamental processes in the body:

- Brain/neurotransmitters

Depression
ADHA
Anxiety

70% Of Serotonin is made in the gut.

Sources of Choline

- Fish
- Meat
- Nuts
- Cruciferous vegetables
- Avocado
- Molasses
- Eggs
- Shrimp
- Lecithin

Estrogen is conjugated in Phase 2 and then passed into the small intestine to be excreted in the stool. If there is a problem with this process, estrogen is reabsorbed into the body and is stored in the fat tissue.

- Increased estrogen is the main cause of gallbladder disease.
- When estrogen goes up, methyl groups go down, causing a thickening of the bile (estrogen uses up methyl groups).
- Gallbladder removal is among the top 10 surgeries in the US.
- The gallbladder is almost always able to be saved.

Gallbladder

- The gallbladder needs acid.
- Gallbladder problems usually occur in women peri-menopause; if estrogen is not conjugated in the liver and removed from the body, it enters the gallbladder and thickens the bile, finally precipitating out as gallstones.
- If you see fat in the toilet, that is a gallbladder problem.
- There are supplements available to thin the bile.

Problems caused by high levels of estrogen include:

- Stroke
- Blood clots
- Thyroid issues T4 to T3
- Fibroids
- Endometriosis
- Gallbladder issues
- Anemia
- PMS

Estrogen Makes Choline

As we age and our estrogen levels are reduced, we may need to add choline through our diet and in some cases, through supplements.

Choline is one of the major players in the methylation cycle.

Estrogen and Methylation

Low estrogen symptoms include:

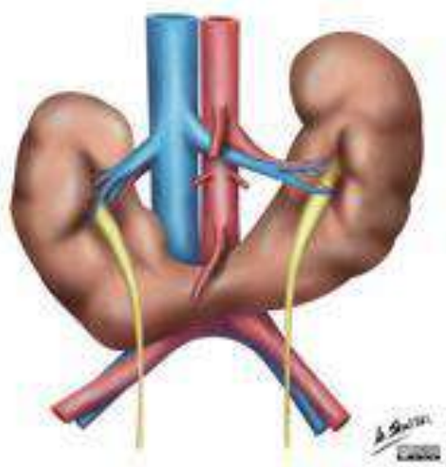
- Mood swings/irritability/crying/anger
- Heart issues
- Memory problems
- Hot flashes
- Dementia
- Stroke

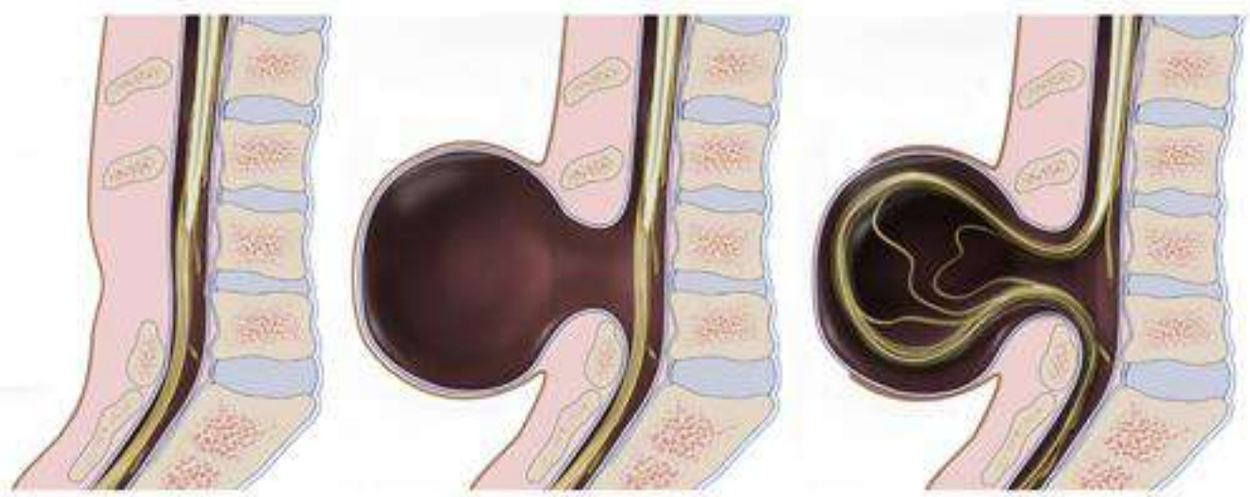
- 90% of fatty liver disease is caused by a choline deficiency.
- 80-90% of people in the U.S. have some stage of fatty liver disease.
- Low estrogen = low choline
- Methyl stress = stroke
- Food is a signal to the genes (epigenetics).
- Mom had MS, food can light up non expression.

Majors signs of methylation problems

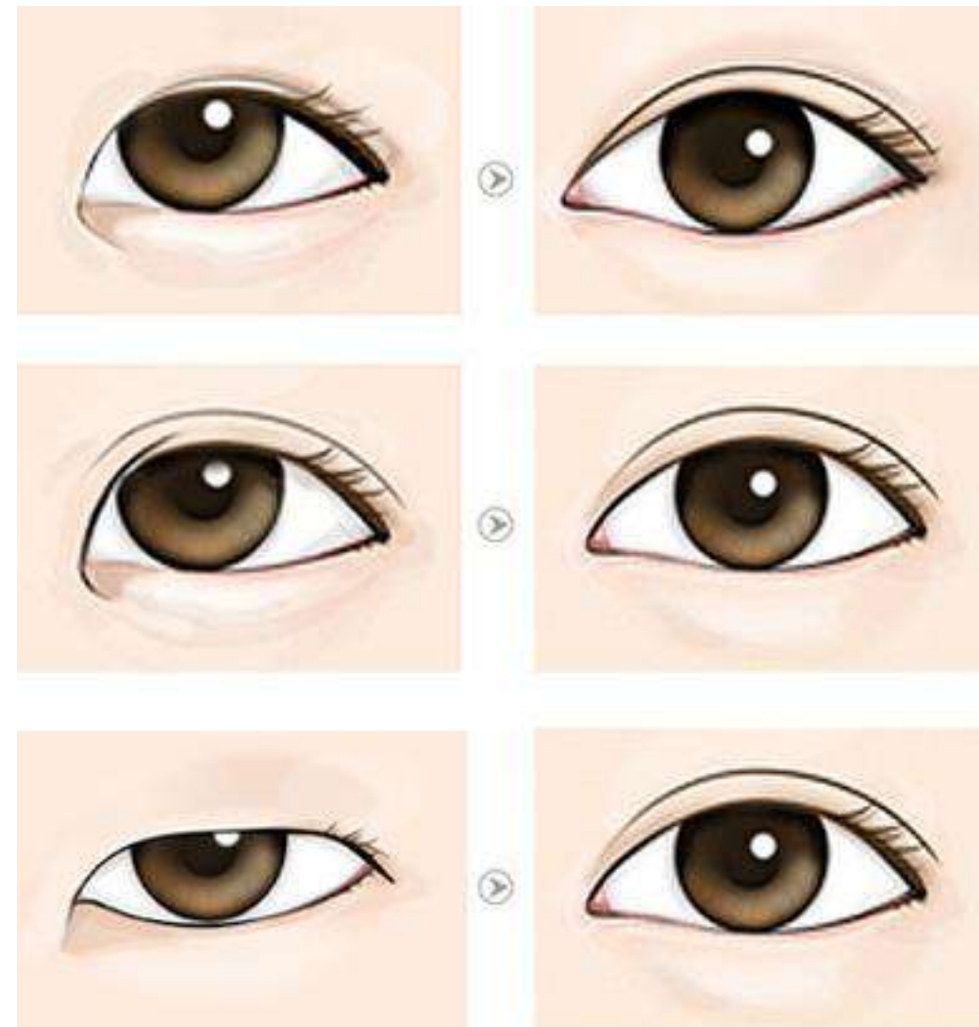
Most symptoms occur in the middle of the body

Scoliosis
Down syndrome
Epicanthic folds
Cleft palate
Tied tongue
Central boney changes
Fetal alcohol syndrome
Eyes closer or further apart
Horseshoe kidney
Autism
Limb length variance
Cranium outside skull
Hole in heart
Immature heart





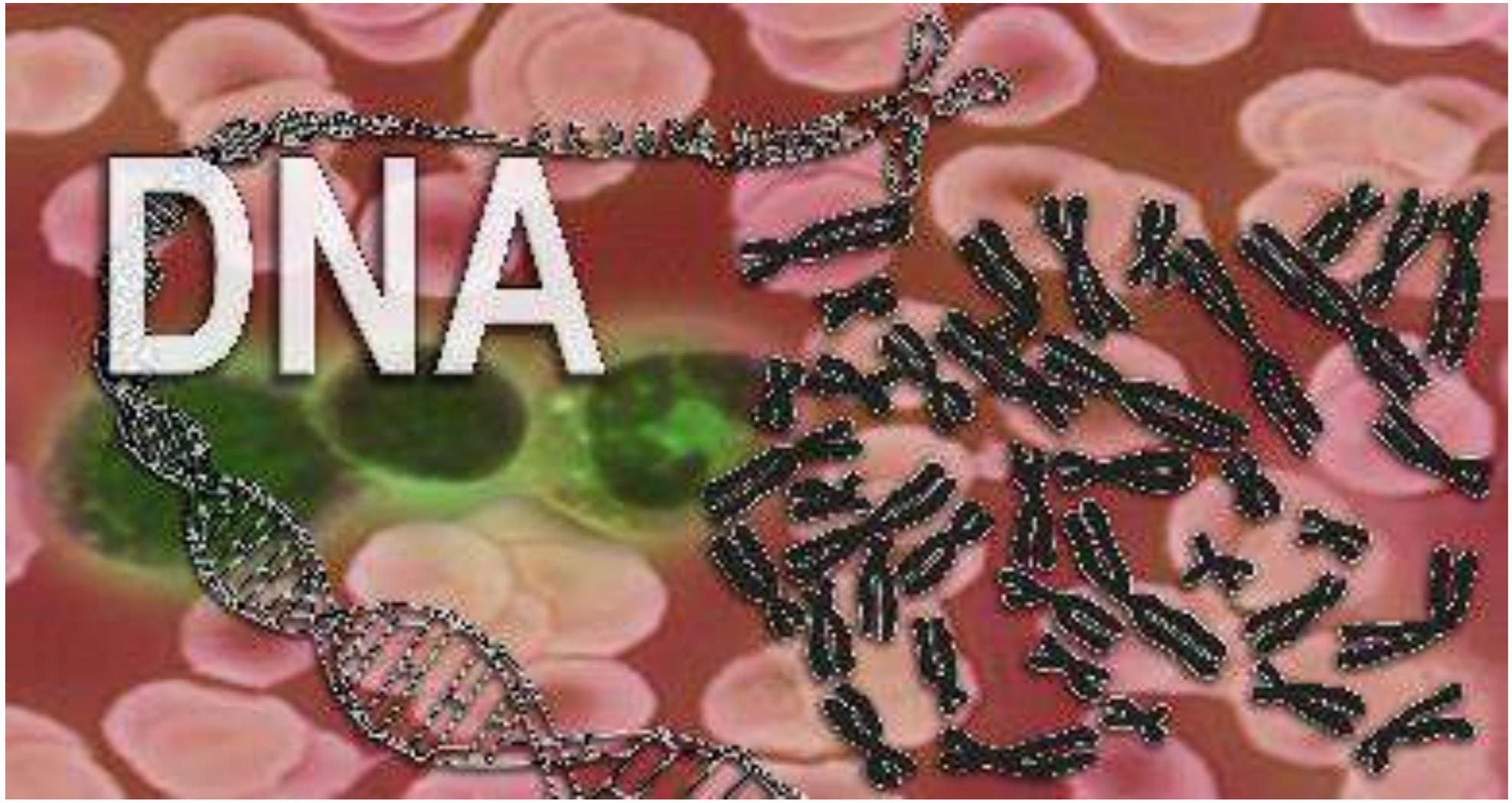
Spina bifida occulta Meningocele Myelomeningocele



Talking to your Genes via Methylation

Nutrition changes the genetic code

Epigenetics

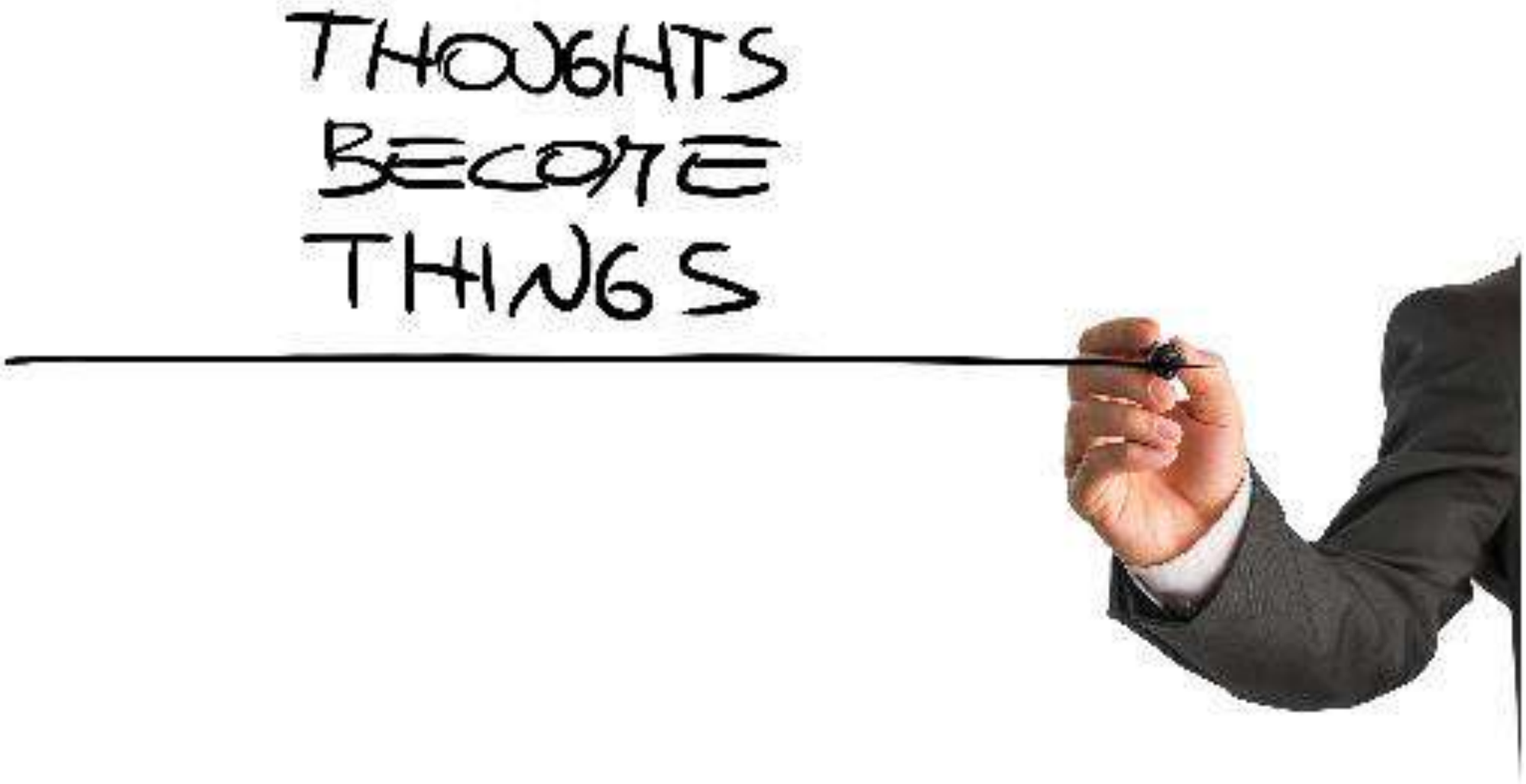


HCL Increases the Methyl Groups

Heartburn

- Stomach/acid reflux is from too little acid, not too much.
- When there is too little acid, the esophageal sphincter does not close properly, causing reflux.
- Taking the blue pill or antacids only increases the problem. If you block acid you will increase osteoporosis, leading to increased hip fractures by blocking minerals and decreasing B12 levels, which leads to dementia.
- Patients that wake during the night feeling like they are having a heart attack are suffering from low HCL. It stimulates the pericardium.

- Stress is also created by going more than 3-4 hours with no food. This causes the release of stress hormones to combat low blood sugar.
- Ulcers are created when blood is moved out of the stomach.
- Acid blockers increase acid production!!!
- Remember: HCL is needed for the production of methyl groups.
- You have to fix the digestive/gut issues before you address methylations issues. HCL supplementation addresses both. But first, you must address and fix insulin issues.



We create a resonance via our thoughts, and the law of attraction will draw to us that which we think about.


Brighten Up
Your Day
With Smiles

What you focus on is what you will create!!!

Heart and consciousness first!!

- I am now willing to be outrageously healthy.
- I am now willing to do whatever it takes to be outrageously healthy.
- I love myself.

Patients don’t know what they don’t know!!

Patient education is the best way to encourage compliance.

Care and healing take time; 1-3 years and then a continuous lifetime commitment to change.

Healing is not an event; it is a process!

Don’t let the patient rush you!!!

Vitamin C is the Big Kahuna!

Every process and cell in the body requires it.
We do not make it; we need to ingest it every day!!

Nutrition

The Sequence of Protocols

- Sugar handling
- Digestion/Microbiome
- Methylation

6 hours of credit

Dr. Shirley Watson

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