How is the gut, liver, adrenals, sugar levels and the thyroid connected?

Nothing in our human body works in isolation. Even though doctors look at each organ separately, the truth is: there is an intimate connection between all organs. Let’s explore the key ones here.

101 on the Endocrine System

- Endocrine system is a collection of ‘glands’ that produce hormones.
- All the hormones are interconnected and some are used to balance each other out. An imbalance in one (e.g. adrenals) will have an impact on another (e.g. thyroid).
- The endocrine system is instrumental in regulating mood, growth and development, tissue function, metabolism, and sexual function and reproductive processes.
- They move throughout your network of veins and vessels regulating and controlling an extraordinary number of your major bodily functions. And these tiny little controllers effect how you feel in a VERY BIG way!
- When balanced, your hormones can work for you, instead of against you!
- All hormones are proteins, but all proteins are not hormones.

**THE ENDOCRINE SYSTEM**

- **HYPOTHALAMUS**: Regulates hunger, thirst, sleep and wakefulness plus most of your involuntary mechanisms including body temperature.
- **PITUITARY GLAND**: Controls all other endocrine glands; influences growth, metabolism and regeneration.
- **THYROID GLANDS**: Regulates your energy and your metabolism.
- **PARATHYROID**: Secretes the hormones necessary for calcium absorption.
- **THYMUS**: Helps build resistance to disease.
- **ADRENAL GLANDS**: Secretes hundreds of compounds including corticosteroids & adrenaline which helps you react to emergencies, regulates your metabolic processes in the cells, water balance, blood pressure, etc.
- **OVARIIES**: Influences how your blood circulates and determines your mental vigor and your sex drive (Testes in males.)
- **METABOLISM**: The conversion of nutrients into energy and building materials to meet your body’s needs.
Function of the thyroid

Thyroid is a gas pedal. It steps up when we are cold by creating more heat. If we have a virus, it mobilizes the immune system to fight the virus. If we get stressed out, the thyroid steps in so we don’t get overrun.

Thyroid hormone exerts its influence on every body cell, which means that every body cell needs it to function well.

When the thyroid hormone is not balanced, a number of medical conditions can happen. These medical conditions include coronary diseases and hypertension.

27 million Americans are suffering from thyroid diseases but only 13 million have been diagnosed. The other 14 million people display symptoms ranging from depression, anxiety attacks, fatigue, weight gain and so many more.

Thyroid conditions are one of the most undiagnosed and misdiagnosed conditions, largely due to doctors’ dependence on blood labs alone.

Why is this all happening [as in autoimmune disorders]?

Doctors would tell you “nobody knows”.

If you are a little analytical, well travelled and start putting a few facts together, namely:

- nutritional deficiency
  - people feel so much better with a simple multi-vitamin
  - poor soil, lousy agricultural practices depleted the soil and fruit and veggies
- toxicity
  - environment
  - food, non-organic, not fads in organic, fertilizers are neurotoxins
  - water; chlorine, fluoride
  - household toxicity; cleaning materials, washing powders, air refresheners, etc.
- overuse of antibiotics
  - antibiotics kill both good and bad bacteria in the gut
  - there is a saying: “you are only as healthy as your gut”
  - the immune system lives in your gut
  - most people with autoimmune issues have gut issues too

What are the typical symptoms of hypothyroidism?

- fatigue, exhaustion
- feeling run down and sluggish
- depression
- difficulty concentrating
- brain fog
- unexplained or excessive weight gain
- dry, coarse and/or itchy skin
- dry, coarse and/or thinning hair
• brittle nails
• feeling cold
• constipation
• muscle cramps
• muscle loss
• increased menstrual flow
• more frequent periods
• low sex drive
• infertility and miscarriage

What are the typical symptoms of hyperthyroidism?

• nervousness
• irritability
• increased perspiration, feeling hot
• thinning of your skin
• fine brittle hair
• muscular weakness especially involving the upper arms and thighs
• shaky hands
• panic disorder
• insomnia
• racing heart
• more frequent bowel movements
• weight loss despite a good appetite
• lighter flow, less frequent menstrual periods

What is the difference between hypothyroid and Hashimoto’s Disease?

90% of cases of hypothyroidism in the US, Europe and Australia are the result of an autoimmune disorder called Hashimoto’s Disease. The other 10% are due to iodine deficiency which is rare unless you live around Michigan. You might not be aware that most thyroid problems in women (and men) are in fact NOT caused by a thyroid disease but an autoimmune disorder in which your own immune system gets confused and starts attacking your own thyroid which then starts to under function.

An autoimmune disease is very hard to treat as modern medicine does not have a cure for it today. This is also why it’s so important to measure your antibody levels to understand the degree of the disease. Sadly, hardly any doctor will run these tests. Medications like Synthroid, Levoxyl, Cytomel, etc are synthetic versions of your thyroid hormone which your thyroid is not producing sufficiently now – they do not however address the cause of your immune system producing the killer antibodies.

The 1:1 coaching program was developed to largely help you start the healing process by giving you a concrete thyroid diet foods and plans to give your autoimmune system a rest by lowering the chronic inflammation in your body.
How are the thyroid hormones produced?

Chart 1

- Pituitary gland
- TSH (Thyroid Stimulating Hormone)
- T4 (inactive hormone)
- Liver and Gut
- T3 (active hormone)

Chart 2

- TSH
- T4 (inactive)
- T3 (active hormone)
**Reasons for not converting T4 to T3**

T3 is the active hormone - it means this is the hormone that gets absorbed by majority of our body cells (doctors refer to it as hormone receptors). We might have a sufficient amount of T4 (e.g from Synthroid) but it means little when there is insufficient amount of T3. This is another common challenge with conventional doctors – they don’t measure T3 levels. Sufficient T3 levels will ensure we have energy, metabolic energy to burn fat, have mental clarity, good digestion; in other words: feel and function well.

There could be a couple of reasons why we might not be converting T4 to T3 at an optimal rate, see the list below:

<table>
<thead>
<tr>
<th>Nutritional deficiencies</th>
<th>Diet</th>
<th>Other</th>
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<tbody>
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<td>Vitamin A</td>
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<td>Vitamin B6</td>
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<td>Vitamin B12</td>
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<td>Vitamin D</td>
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<td>Chromium</td>
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<td>Selenium</td>
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<td>Birth control pills</td>
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<td>Steroids</td>
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<td>Lithium</td>
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<td><strong>Toxicity</strong></td>
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<td>Mercury, lead</td>
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<td>Fluoride</td>
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<td>Radiation</td>
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</table>
Typically, in the case of hypothyroidism, TSH is elevated and T3 and T4 hormones are too low. The pituitary gland produces extra TSH to stimulate the thyroid to make more T4 hormones but due to thyroid dysfunction, not enough T4 gets produced.

In the case of hyperthyroidism the opposite happens; in spite of very little TSH produced by the pituitary gland, the T4 and T3 are too high.
Adrenals and thyroid health

Adrenals are part of the endocrine system, as is the thyroid. These are glands located just above the kidneys and they are responsible for making us adapt to environmental changes. They are also called “fight or flight” glands responsible for the high we get to deal with adverse situations. This means increasing the heartbeat, increase the blood pressure and mobilizing the sugar from the liver to give us an energetic boost.

When these glands are chronically overworking due to stress from emotions, chemical exposure or physical encounters, they start to fail.

What are the typical symptoms of adrenal fatigue? Many of them overlap with hypothyroidism, the ones that are unique are highlighted in blue.

- overwhelmed by or unable to cope with stressors
- dark circles under the eyes
- frequent sighing
- craving salty and sweet foods
- you feel most energetic in the evening
- the day does not start till 10am or after 2 cups of coffee
- feeling really tired after exercise
- slow to recover from injury, illness or stress
- consistent low blood pressure and getting lightheaded when getting up
- excessive fatigue and exhaustion
- non-refreshing sleep even after having slept 10 hours
- difficulty concentrating, brain fog
- feeling rundown or overwhelmed
- poor digestion
- low immune function
- food or environmental allergies
- premenstrual syndrome or difficulties that develop during menopause
- extreme sensitivity to cold

Adrenals produce hormones like DHEA, hydrocortisone, estrogen, testosterone, progesterone and pregnenolone. An inadequate production of adrenal hormones can result in a poor conversion of the inactive T4 to T3.

When thyroid hormones are prescribed for hypothyroidism, the metabolism of the body is increased. This will stimulate the adrenals to play along but when the adrenals are not able to produce sufficient hormones, they can get completely overloaded and this can even cause failure of the adrenal glands.

Treating thyroid without treating the adrenals will not produce good results and in some cases will even make the patient feel worse.

Modern medicine does not recognize adrenal fatigue as a medical condition; it is therefore key for you to find a doctor who is well versed in adrenals. This would typically be a holistic doctor, an integrative MD or a naturopathic doctor. For listings, see the end of this document.
Sugar levels and thyroid health

Low blood sugar = hypoglycemia, high blood sugar = insulin resistance.

We are addicted to sugar in America. Sugar from high-grain diets, fast food, sodas and candy. It’s no wonder the Center for Disease Control and Prevention predicts that one in three Caucasian children born after 2000 will become diabetic. For Hispanics and African Americans, the number is 1:2.

What are the symptoms?

- cravings for sugar and/or carbs like bread or pasta
- compulsive overeating/food addiction
- irritated when a meal is missed or late
- feeling shaky, jittery
- fatigue after meals
- must eat sweets after a meal
- candida yeast overgrowth
- sleepiness after a meal
- frequent urination
- excessive thirst
- extra weight around the belly

Hypoglycemia is when your blood sugar is always running low.

With insulin resistance, it’s too high. Insulin assists glucose (sugar) around the body to be absorbed by different organ cells to get energy. Due to years of sugar overdose, these cells become resistant and don’t want to let the glucose in. Result: excess glucose in the blood doing much damage to many organs.

If you do not regulate your sugar levels first, you will have a difficulty fixing the thyroid, this means losing the weight and get healthy. Both are pre-diabetic conditions, the sugar levels are destroying your organs, make you crave carbs and sugars.

How do I reverse it? Yes, with a specialized fasting diet, followed by a low Glycemic-Index plan + supplements.
What to test for when you have hypothyroid, hyperthyroidism, Hashimoto’s or Graves’ Disease.

M = male / F = female / A = ages

<table>
<thead>
<tr>
<th></th>
<th>Conventional Medicine</th>
<th>Functional Medicine</th>
<th>Optimal</th>
<th>OK</th>
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<tr>
<td><strong>Thyroid hormones</strong></td>
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<tr>
<td>TSH</td>
<td>0.450-4.500 mU/L</td>
<td>1.0 - 2.0</td>
<td>1.0 – 2.0</td>
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<tr>
<td>Free T4</td>
<td>0.82-1.77 ng/dL</td>
<td>1.2-1.4</td>
<td>1.4-1.77</td>
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<tr>
<td>Free T3</td>
<td>2-4.4 ng/dL</td>
<td>3.2-4.4</td>
<td>2.8-3.2</td>
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<td>Reverse T3</td>
<td>11-32 ng/dL</td>
<td>FT3/rT3 = 20 or more</td>
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<td>TPO Antibodies</td>
<td>0-34 IU/mL</td>
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<td>TGB Antibodies</td>
<td>&lt;20 IU/mL</td>
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<td><strong>Vitamins and minerals</strong></td>
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<tr>
<td>Ferritin</td>
<td>30-400 ng/mL (M)</td>
<td>75-350</td>
<td>30-400</td>
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<td></td>
<td>13-150 ng/mL (F)</td>
<td>25-125</td>
<td>13-150</td>
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<td>Vit D</td>
<td>30-100 ng/mL</td>
<td>60-80</td>
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<tr>
<td>Vit B12</td>
<td>211-946 pg/mL</td>
<td>650-946</td>
<td>350-900</td>
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<td>Vitamin A</td>
<td>900 mcg/3,000 IU (M A &gt;14)</td>
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<td>700 mcg/2,310 IU (F A &gt;14)</td>
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<td>Folic acid (Vit B9)</td>
<td>2.2-20 ng/mL</td>
<td>3-20</td>
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<td><strong>Sugar levels</strong></td>
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<tr>
<td>Glucose (fasting blood sugar)</td>
<td>65-99 mg/dL</td>
<td>74-84</td>
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<td>HA1C</td>
<td>4.8-5.6%</td>
<td>4.8-5.1</td>
<td>5.1-5.4</td>
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<td>Insulin</td>
<td>0-24.9 IU/mL</td>
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<td>10-15</td>
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<td><strong>Lipid Panel</strong></td>
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<td>Total Cholesterol</td>
<td>100-199mg/dL</td>
<td>125-145</td>
<td>145-165</td>
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<tr>
<td>LDL</td>
<td>0-99 mg/dL</td>
<td>0-70</td>
<td>70-80</td>
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<td>HDL</td>
<td>39-125 mg/dL</td>
<td>60-65</td>
<td>65-125</td>
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<tr>
<td>Triglycerides</td>
<td>0-149mg/dL</td>
<td>0-50</td>
<td>50-70</td>
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<td><strong>For hormonal and adrenal health</strong></td>
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<td>DHEA-S (sex hormone)</td>
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<td>24-hrs cortisol saliva (4-point test)</td>
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<td>Estrogen (E1, E2, E3)</td>
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<td>Progesterone</td>
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<td>Estrogen metabolism</td>
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<td><strong>Toxicity</strong></td>
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<td>Heavy metals panel - tested if diet and lifestyle changes are not producing desired results.</td>
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<td><strong>Parasites</strong></td>
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<td>H.Pylori</td>
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