Healing the Many Faces of Glandular Failure

by William Ferril, MD

More than 11 years ago, I walked away from medicine. I became convinced that there had to be more science documenting how the body heals. I bought new textbooks, scoured old textbooks, and acquired numerous mainstream scientific papers; and I studied them all intently. You see, I sold my farm to finance this five-plus-year study project. I mention these details because I believe that most any physician who has the time to study uninterrupted from practice demands could connect some overlooked scientific dots as I have. Over the last five-plus years, I have been back in active practice, applying what I learned with some good results. This missive is about one fascinating discovery that I have pieced together during my quest to help patients heal.

When I encounter a new patient who suffers from diseases like diabetes, heart disease, all autoimmune conditions, osteoporosis, degenerative joint disease, wrinkling and sagging skin, neurodegenerative diseases, or fibromyalgia, I endeavor to discover where nine important glandular secretions may be failing them. Good science supports my inquiry here, yet paradoxically many of my strictly traditional colleagues are in the dark about why I prescribe bioidentical hormones to help heal these diseases.

I have come to regard each of these important glandular secreted hormones as possessing a personality of sorts that helps explain its properties within the body’s components.

Nine Hormone Personalities

1. Growth Hormone

Your cells’ ability to burn fuel forms one component for how warm your body is. In addition, out of the four hormones that encourage fuel dumping into your blood stream, only sufficient growth hormone keeps protein from being processed for combustion. Instead, growth hormone encourages your liver to dump stored sugar and fat. Woefully underappreciated by most doctors is the fact that only if you enjoy sufficient growth hormone can your youthful appearance endure.

Apparently, it is a perpetrated scientific top secret that proteins provide the metabolic component of our bodies. In addition, it is adequate proteins that prevent your structural deterioration manifesting in shrinking, hunching, shriveling, and crunching. Here in Montana, we call it the “rode hard and put up wet” look.

For this reason, to one of your cells, growth hormone is like the “parent” of the household who sees to it that the “children” (the lesser fuel-generating hormones cortisol, epinephrine, and glucagon) do not burn the “furniture” (protein) in the furnace to heat the “house” (cell). You see, these other three lesser hormones ransack a cell’s functional components (proteins) for fuel generation.

Eventually, like barren houses, diminished protein (the metabolically active component in each and every one of your cells) causes aging within and sagging without. However, if you enjoy adequate protection here, can you retard the consequences of chronically ransacking your precious proteins for fuel generation. In fact, look around you and notice the many hunching, crunching, shriveling, and sagging bodies out there that result solely from not enjoying adequate defense from their proteins being destroyed. Bottom line: only with sufficient growth hormone present can you remain youthful because your functional components (proteins) remain adequate. I encourage you to read on and discover a mostly overlooked scientific truth about what determines how much growth hormone your body makes.

2. Thyroid Hormone

Involved in three main things: upgrading your cellular “furnace” (mitochondria) integrity, manufacturing mineral pumps on the cell surface in order to create a living battery (increases the cell voltage), and instructing the pituitary to manufacture growth hormone. It is important for you to notice how the first two properties of thyroid hormone promote metabolism, but the last one protects it from dismantling. Also note the pituitary dependence on sufficient thyroid gland function, or growth hormone production falls off. In addition, note that an adequate cell voltage within your 70 trillion cells creates sufficient body heat, much as an idling car engine gives off heat as a byproduct. Finally, each
mitochondrion's adequate function depends on your having sufficient thyroid hormone, and because heat is a mitochondrial byproduct, your enjoying adequate warmth depends on thyroid as well.

These roles of thyroid hormone explain why if you suffer from its deficiency, you will remain cold, because both your metabolism (cell voltages) and fuel combustion chambers (mitochondria) remain feeble. In addition, thyroid's third role of directing the pituitary into growth hormone production explains why its insufficient presence causes you to age so quickly. For example, hair color requires adequate protein pigment manufacture within your hair follicles, so the lack of thyroid hormone accelerates graying of your hair.

3. IGF-1

Just as a car requires a fuel nozzle to fill its tank, so do your cells require a molecular "nozzle" to suck fuels from your bloodstream. Your body has two different molecular fuel nozzles, insulin and IGF-1 (insulinlike growth factor type 1). Another unfortunate scientific secret involves the fact that IGF-1 is the preferred molecular fuel nozzle for most of your cells outside of the liver and fat. These other cells include most all other organs, muscles, ligaments, joints, and bones.

Giving even more importance to your growth hormone levels is the fact that the rate of IGF-1 release from your liver depends on adequate growth hormone release in the pituitary. However, IGF-1 synthesis rates within your liver depend on adequate anabolic steroids instructing it to do so (explained below).

An additional important but mostly overlooked longevity consideration is that if IGF-1 is deficient, insulin must increase in order to normalize a blood–fuel elevating event like eating carbohydrate. Unfortunately, although not commonly realized by your doctor, insulin's secretion pathway always gives your liver and fat cells the majority of the nutrition within your bloodstream while your other cells starve.

Visualize that without your enjoying enough IGF-1, the liver and fat villainously hog nutrition by encountering and trapping the majority of the insulin. Insulin is the fat-maker hormone because it always arrives within your liver first when it is secreted from the pancreas. Here, it instructs your liver to store energy as carbohydrate and fat. There is an upper limit to your liver's ability to store carbohydrate but no upper limit in how much it converts into fat (cholesterol and triglyceride). In this situation, all your other body cells starve. This situation, when it becomes chronic, eventually produces what I call hungy cell syndrome (explained below).

It is important that I mention that mainstream medicine stops looking for why insulin elevates abnormally and only describes it as "insulin resistance" while, if the truth be known, insulin resistance is nothing more than increased insulin need to normalize a sugar load because something has happened to your body's main fuel nozzle hormone, IGF-1. Normally, although not commonly appreciated, IGF-1 makes up 93% of the fuel nozzle action in your bloodstream! Visualize all the starving cells beyond your liver and fat when IGF-1 becomes scarce: abnormal amounts of insulin pummel your liver.

I see far too many patients who chronically suffer various forms of hunching, crunching, sagging, and shriveling, only because their doctors fail to inquire as to why their IGF-1 is falling off. Visualize that while excessive insulin makes you fat, IGF-1 deficits cause a simultaneous wasting disease hiding amongst the fat!

Hunching, crunching, sagging, and shriveling are all caused by "fuel nozzle" deficits, which cause many of your cells to remain hungry. Chronically hungry cells become malnourished and therefore cannot possibly repair the wear and tear of life. Common examples of diseases with a component of causality in hungry cell syndrome are diabetes, heart disease, autoimmune conditions, osteoporosis, degenerative joint disease, wrinkles, and fibromyalgia. The good news is that if you work with a physician who is knowledgeable about the ways to restore your IGF-1 levels, you will begin to heal.

4. Insulin

As I previously stated, excessive insulin secretion from your pancreas allows the liver and fat to procure excessive nutrition while your other cells starve. This is especially true if your other "fuel nozzle," IGF-1, diminishes. If it does, excessive insulin needs to release to normalize a sugar load like that following a carbohydrate-containing meal. Unfortunately, again not commonly appreciated by most doctors is the fact that insulin always releases from your pancreas and heads straight into your liver via the portal vein, where it confronts the 200,000 pure insulin receptors per liver cell. This means that very little of your pancreatic-secreted insulin ever makes it beyond this very effective insulin trap. It also means that fuel nozzles will be scarce beyond the liver and hence most of your other body cells will remain hungry (hungry cell syndrome) if your IGF-1 level has fallen off. It also explains why you need excessive insulin (insulin resistance) to normalize a sugar load and why your cholesterol and triglyceride worsen as well. Remember that most body energy is stored as fat (cholesterol and triglyceride).

Bottom line: if you ever want to recover from any of the above list of hungry cell syndrome–involved diseases, you must seek the counsel of a physician who will increase your IGF-1 levels. Visualize the ongoing "tug of war" between these two fuel nozzle hormones as to where fuel is sucked out of your blood stream. Because most of your body energy is stored as fat, if insulin gains the upper hand, it directs the liver to turn excessive sugar into cholesterol and triglyceride (the main pH neutral...
types of body fat). Somehow, this liver-manufactured fat is assembled with specific proteins to form LDL cholesterol, which is destined for the fat cells and macrophage cells that line your arteries. The more of this arriving to the fat cells, the fatter you become. Making matters worse, the more your macrophage cells gobble up LDL cholesterol, the more fatty arterial blockages you acquire.

5. Anabolic Steroids
Coaches know all about anabolic steroids, and their knowledge proves instructive when we wish to regenerate. Anabolic steroids determine the repair rate because they powerfully activate the genes contained within your 70 trillion cells. You see, no matter the deficit or injury a cell endures, until it can activate its genes, which always code for specific proteins (the metabolic-enhancing, wrinkle-preventing, and nonsagging component of your body), it cannot repair (regenerate).

Because of this ability, anabolic steroids exert an important role in your becoming younger next year. Note that we are not talking about the huge doses of synthetic or animal anabolic steroids prescribed to athletes, but rather the optimal amount of bioidentical anabolic steroids enjoyed by all healthy people.

Please further note that anabolic means to build up your protein-dependent structures and metabolism. In contrast, catabolic means to use up some of your proteins for fuel generation. This build-up quality of your anabolic steroids is referred by scientists as promoting positive nitrogen balance. This is a shorthand way of denoting protein adequacy because proteins contain the lion’s share of nitrogen within our bodies. Visualize wrinkled, stooped, and sagging bodies as those of us who lack enough of these important proteins. Also realize that all your metabolically active components are proteins (enzymes, actin, myosin, and membrane mineral pumps) that again cannot be made without these powerful hormones sufficiently present. Unfortunately, it is not commonly realized that you will never begin to reverse this process until you again enjoy sufficient anabolic steroids activating your genes to make the deficient proteins needed for optimal cellular function.

For example, the most common form of osteoporosis involves the fact that inadequate bone cell–gene activation occurs for new collagen (a protein) formation. You see, calcium has nothing to stick to within your bones unless your bone-forming cells’ genes (osteoblasts) sufficiently activate and synthesize new proteins first. A simple scientific fact, yet it is left out of most doctors’ education. It is important that I emphasize that before your genes activate, they need the sufficient presence of anabolic steroids instructing this activity!

Once you realize this, it becomes clear that your genes provide nothing until the right hormone arrives! Your cognizance here allows you to see the true primacy of having sufficient bioidentical hormones within before you can ever begin to reverse aging without. Look around you and witness all the needless suffering and aging because this first truth remains largely ignored and in its place are all the symptom-control approaches with their diminished outcomes.

6. Cortisol
Cortisol’s message content to your body’s cells is opposite to that of the anabolic steroids. Cortisol is representative of the catabolic steroids that consume body structure (proteins) for fuel generation, causing negative nitrogen balance. Your adrenal glands secrete cortisol. Cortisol-endowed secreting machines were the warriors of primitive times because, in a pinch, ransacking proteins for fuel enhanced physical strength and hence your odds for survival. Unfortunately, today your stress is largely both chronic and mental in nature. As a consequence, those of us with this trait end up needing excess insulin to bring down the inappropriate blood sugar surges, because no physical threat ever comes. Compounding this trait’s weight-gaining dilemma is that elevated blood sugars caused by this mechanism suppress IGF-1 release!

You see, if your adrenals secrete excessive cortisol while you are awake, you will tend to have slightly elevated blood sugars throughout the day (the true cause of metabolic syndrome). Unfortunately, it is a slightly falling blood sugar (about 70) that promotes the release of growth hormone, and subsequently this causes your liver to release IGF-1. IGF-1 keeps your lean body mass well nourished, as described above. In contrast, as also mentioned above, insulin gives the nutritional advantage to your liver and fat. Hence it promotes the liver-as-nutritional-hog situation (excessive insulin need to normalize a sugar load, as noted).
So what was your functional tissue, protein, and then sugar eventually becomes fat and is deposited in the arteries and abdomen (metabolic syndrome). Without most doctors' realizing it, this heightened ability of adrenal glands to secrete cortisol for a given stressor explains much about what scientists call metabolic syndrome (not all the way to frank Cushing's disease levels, but heightened). It also explains the mechanism by which those of us afflicted with this syndrome age so quickly (insufficient anabolism with heightened catabolism promoting excessive carbohydrate creation without even eating sugar. It also explains your carbohydrate sensitivity [weight and cholesterol worsening] at its root if you suffer from metabolic syndrome). Most doctors fail to realize these basic scientific facts because they do not test for the important metabolites of cortisol exiting in your urine. After reviewing thousands of 24-hour urine test results, a pattern for this association became clear to me. In fact, over 50 years ago, scientists documented the association of many obese (metabolic syndrome) patients and heightened cortisol metabolites exiting in their urine.

7. Epinephrine

If we run out of cortisol, we become anxious and jittery because we survive in the paranoid way that epinephrine instructs. You see, ideally, growth hormone maintains the blood sugar between meals and while exercising. This is the ideal, because it protects your precious proteins from catabolism for fuel generation by instructing your liver to release not only IGF-1 but also stored sugar and fat. The next tier of blood sugar support is cortisol, but it, as previously mentioned, creates sugar out of your body's functional component, proteins. Cortisol, unlike epinephrine, does not produce anxiety and the jitters but rather calm within the storm. This last fact explains why overweight (metabolic syndrome) patients are often filled with stamina and the ability to remain level-headed in stressful situations.

At the opposite extreme, some of my patients cannot secrete adequate cortisol with stressful situations (not as extreme as Addison's disease but moving in that direction). Again, most of my colleagues miss documenting this deficit because they fail to check these patients' metabolites of cortisol exiting in their urine over a 24-hour period. In these situations, epinephrine maintains their blood sugar. However, excess epinephrine secretion is the last resort for maintaining the blood sugar. If you find yourself short on the other blood-sugar supporting hormones, you are moments from death. This causes nervous system shock. This explains why excessive adrenaline causes side effects like rapid heart rate, jitters, paranoid thinking, and sweating because a falling blood sugar causes nervous system shock.

8. Estrogen

Visualize a buxom goddess, because estrogen deposits fat evenly all over a woman's body, particularly enhancing the breasts, hips, and thighs. However, too much estrogen encourages excessive growth hormone release and subsequently sugar and fat release, but inhibits IGF-1 release (a diabetogenic effect). This means that excessive insulin may be summoned, and its increase always means that fat-making will increase. Again, these relationships, although written about in the mainstream literature, are most likely not appreciated by your doctor because s/he does not routinely check for estrogen metabolites exiting in your urine. I have seen far too many of my female patients suffer weight gain as a consequence of their original doctor's overdosing or incorrectly administering estrogen. (Whether it is horse estrogen or bioidentical, too much of it causes this abnormality to occur.)

9. Glucagon

The daily battle between insulin and glucagon determines much about your cholesterol level. Glucagon turns off the cholesterol-making machinery within your liver, while insulin turns it on. You see, HMG-CoA reductase activity is determined by which of these pancreatic-secreted hormones dominates within your liver. This partly explains why carbohydrate consumption powerfully determines your cholesterol synthesis rate. For this reason, which hormone wins moment by moment is determined by how much of each the pancreas secretes in response to your feeding status.

When I encounter new patients with diabetes, heart disease, any of the autoimmune diseases, neurodegenerative diseases, osteoarthritis, sagging skin, osteoporosis, obesity, or fibromyalgia, I view the above nine hormone personalities determining much about their ability to repair and hence heal. Of course, I also have developed nutritional protocols and other testing procedures that subdue the injury rate, but that discussion needs to wait for another day.

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