



Acupuncture & Natural Health Solutions

Functional Medicine Summer Series #10 Comprehensive Metabolic Panel

Leaky Gut and Leaky Vessels Globulin, Total Protein & Albumin Biomarker

Greetings, Root-Cause Warriors!

Welcome back to another edition of the Summer Functional Medicine Series all about the basic lab values. Before we get started, I want to remind you that season is coming fast and furious. I am surprisingly busy for mid September and only have one acupuncture appointment available over the next two weeks and October is starting to fill up. Please look ahead at your calendars, I encourage you to schedule out a month or two to ensure you lock into your preferred day and time.

Today we are going to be discussing globulin, total protein and albumin. If we only have access to basic blood labs and we want to know about the health of our gut lining and possible leaky gut scenarios, we look at the globulin, total protein and albumin biomarkers.

When we talk about leaky gut, we are talking about the integrity of the tight junctions between the cells that line the digestive tract. When these tight junctions begin to break down, the proteins and other substances in the digestive tract are able to seep out between the compromised tight junctions and get into the bloodstream. The immune system sees foreign substances in the blood and becomes activated. This immune response is what leads to

food sensitivities and food allergies. This leakage also leads to inflammation in the body.

The thing is, we don't just leak in one place, say the gut lining. When we have a leaking issue, we leak everywhere. This means the blood brain barrier, the arteries and veins, the kidney system vessels can all be slowly leaking substances into areas they do not belong. Leaky gut, means leaky everything, and this issue needs to be addressed if you want to achieve optimal health.

If globulin and total protein are out of range, either high or low, this indicates you have a leaky situation.

Globulin normal lab range: 1.9-3.7 g/dL (calc)

Globulin optimal range: 2.4 - 2.8 g/dL (calc)

Total protein normal lab range: 6.1-8.1 g/dL

Total protein optimal range: 6.9 - 7.4 g/dL

If you find your values are out of the optimal range, there are actions you can take to improve the leaking situation. First, we need to try find the cause of the weakening of the tight junctions. We should look back at the CBC with differential. Is there an infection? Are the neutrophils high, pointing to a bacterial infection such as SIBO or H pylori? Are the eosinophils or basophils high suggesting a parasitic infection? Is there a candida infection? If an infection is ignored and not treated, the leaking situation will worsen over time, so it is very important to address these issues before trying to heal the gut and the leaking.

One of my specialty areas is working with people to identify and address chronic infections, bacterial, viral and parasitic. If you think you have an issue in this area, schedule an appointment so we can discuss a possible path forward. Healing these issues need to be done in a sequential order.

Once the infection is handled, it is time to move into the gut healing phase. GI Complete combined with IgG Powder by Nutritional Frontiers plus a high quality probiotic are wonderful products for the gut healing stage.

GI Complete is the most advanced formula on the market today for optimal gastrointestinal health. It has been designed to support gut health, soothe the digestive tract lining, promote regularity, microbial balance and support proper immune function. There are two flavors, [GI Complete Raspberry](#) and [GI Complete Lemon-Lime](#). The raspberry is sweet and the lemon lime is more tart.

The IgG powder contains IgG peptides that act as bridges. This supplement helps to bridge the gaps in the tight junctions of the vessel and digestive tract linings. One scoop per day of the IgG powder can be added directly into water along with one scoop of the GI Complete powder to make a tasty beverage. My son considers this drink a little treat from just drinking water. The IgG powder also comes in [IgG Raspberry](#) or [IgG Lemon-Lime](#).

The probiotic recommendation is based on what is going on with you individually. If your labs look pretty good and you do not have any infections, taking 2 capsules of [Super Biotics](#) by Nutritional Frontiers before bed is a good option. Super Biotics contains 12 species of microorganisms from non-dairy sources. Because each strain has an affinity for a different part of the digestive tract, and a unique mechanism of action, a product that delivers multiple strains is preferable to single strain products.

If you have candida overgrowth or any other infection, [SBC - Saccharomyces Boulardii with BI-04](#) is a better probiotic choice. When harmful organisms are allowed proliferate, the delicate balance is disturbed and it becomes very difficult for helpful bacteria to maintain their territory and to colonize the intestinal tract.

Bifidobacterium lactis (BI-04) is the number one studied probiotic. Research shows that it helps to repopulate the gut very quickly. It also has a high tolerance to survival in intestinal conditions (acid & bile), strong adhesion to intestinal wall, maintains and rapidly restores microbiota after antibiotic therapy, improves immune response, and may reduce inflammation.

Over 60% of your body's immune cells live in the mucosal cells of the intestinal tract. This provides the body with the first line of defense against any foreign invaders. The immune system is designed to activate and fight off any foreign invaders such as toxins, bacteria, yeast, viruses, chemicals, plus many other things that we are exposed to on a daily basis.

Maintaining a normal and balanced microbial ecological system is vital to maximizing the immune system. This very delicate and complex system contains over 400 different species of probiotics and over 1 trillion cells.

The final biomarker we will discuss today is albumin. Albumin, produced by the liver, is the most abundant protein in the blood, playing key roles in nutrient transportation, hormone delivery, and maintaining blood vessel fluid balance and acid-base balance. Albumin tells us about inflammation in the body as well as amino acid availability and usage. Amino acids are crucial communicators for neurotransmitters (brain chemicals) and hormones.

Albumin Normal Lab Range: 3.6-5.1 g/dL

Albumin Optimal Range: 4.5 g/dL

The optimal range for albumin is very tight, 4.5 g/dL. Albumin must be at 4.5 g/dL to facilitate recovery from surgery, trauma or chronic health issues.

Lowered albumin levels may be associated with liver disease, inflammation, heart disease, diabetes, cognitive decline, Alzheimer's, or malnutrition, and these low levels can compromise albumin's antioxidant, anti-inflammatory,

and anticoagulant effects. Systemic inflammation can further reduce the production of albumin while increasing its breakdown.

If albumin is low, we also want to look at the liver biomarkers. If albumin is critically low and the CBC with differential numbers are wonky, it is important to get additional testing to rule out certain types of cancer. Low albumin requires more amino acids, more water, and better digestion. By looking at the globulin and total protein numbers, we can see how digestion is doing.

To improve the low albumin values, you would want to supplement with a high quality branched chain amino acid powder and follow the recommendations above on healing the leaky gut and ruling out infection. Amino acids are the body's communicators. It is imperative that you have enough amino acids so the messages can be transmitted throughout the system. I recommend 1-2 scoops mixed in water per day of the [Frontier BCAA's](#) by Nutritional Frontiers. Frontier BCAA's work to improve the albumin value, improve signal communication in the body, heal the gut and vessel linings and build muscle.

Optimal albumin levels are linked to decreased surgical complications and improved survival rates in both hospitalized patients and healthy adults.

Elevated albumin levels might suggest dehydration. Just like with the globulin and total protein biomarkers, high albumin levels also indicate leaking vessels and gut. High albumin levels also point to poor digestion and can suggest a possible vitamin A deficiency, but this needs to be confirmed with other testing.

If Albumin is high, the leaking gut and vessels are causing inflammation in the body. There are two products I recommend to modulate inflammation and to lower the albumin level. The first product is [SPM by Nutritional](#)

[Frontiers](#). This unique, SPM omega-3 derived supplement was designed to help modulate and resolve inflammation.

SPM stands for “Specialized Pro-resolving Mediators” which are recently discovered, naturally occurring substances derived from omega-3 and omega-6 fatty acids. Our bodies make SPMs as a response to help resolve inflammation and they can be produced all over the body in areas like the bloodstream, nervous system tissue, and breastmilk. Specialized pro-resolving mediators are theorized to contribute to the demonstrable beneficial effects of omega-3 fatty acids on reducing inflammation.

While SPMs are produced naturally in humans, the ability of the body to produce SPMs may be compromised in the setting of obesity and aging. Since SPMs are involved in the active, regulated process of resolving acute inflammation and managing the return to tissue homeostasis, supplementing with SPMs may provide benefit and relief to those individuals struggling with discomfort and prolonged inflammation.

The other product I recommend when your albumin level is high is [CircuCORE](#) by Nutritional Frontiers. [CircuCORE](#) provides the building blocks to support nitric oxide formation which may enhance overall circulation, including heart health and erectile dysfunction. Nitric oxide is a soluble gas that is continually being made from arginine in endothelial cells. Endothelial cells comprise a layer of cells inside the lining of our blood vessels.

Congratulations to you if you hung with me and read this entire newsletter. You are the reason I am taking the time to write these newsletters. I know the information is not the most exciting, but these lab values, that are usually run at least annually, really do provide us with a lot of information. The products from Nutritional Frontiers are very well made and I have seen them change the lab values and heal the body. Since there is only one more week of summer, I will be wrapping up the summer functional medicine summer series on basic blood labs with one more issue about four

biomarkers related to the liver. This will complete the Comprehensive Metabolic Panel. Until then, take care and stay healthy.

Want more natural health insights? Listen to my podcast where I discuss lesser-known approaches to chronic health issues. [Listen Now](#)

Supporting your health journey,

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