

A Report from Wellness-Decisions.com

Glyconutrients - What are They?

There is still some mystery surrounding the term glyconutrition and glyconutrients although it is now some years since the discovery of these sweet nutrients and the realisation of their importance to our cellular health.

Glyconutrients are essential to cellular health and to maintaining a healthy immune system.

This report, I hope, will throw some light on the term 'glyconutrients' and the importance of them. There are still many people who have never heard of 'glyconutrients' let alone consider the benefits that they could be experiencing by adding them to their diet.

I had never heard of 'glyconutrients' until it was suggested to me that my health problems could be eased by adding glyconutrients to my diet. I had many questions .. What are they? What do they do? Why do we need them?

I was given lots of good information to read through and some websites to visit. I did my research and read all that I could find and the more I read, the more it seemed to make sense to me. I convinced myself that it wouldn't hurt to try them, and I've made glyconutrients an essential part of my diet ever since.

So:

.. What are Glyconutrients?

To put it simply, glyconutrients, or glyconutritionals, are dietary supplements that contain natural, nutritious plant sugars. They are sometimes also referred to as carbohydrates or saccharides.

"Glyco" is derived from the Greek word for "sugar" or "sweet" so they are "sweet nutrients" or sugars. We mostly think of sugar as being bad for us – and it is true that the refined table sugar (sucrose) that we find in most processed foods, and that we use so often, can be detrimental to our health. Sucrose is an important additive for our diet but not in excessive amounts.

Glyconutrients are "healthy sugars", and are found in fruit and vegetables and provide the body with much needed nutrition. Glyconutrients are not vitamins, minerals, proteins, fats, herbs, enzymes or homeopathic drugs. They are a class of necessary carbohydrate nutrients that play an essential role in offering health support, at the cellular level, for our overall wellness.

It was back in 1996 in Harper's Biochemistry that the breakthrough technology called Glycoscience or Glycomics was first identified. It was noted that of the 200 carbohydrate monosaccharides found in nature there were eight that were "necessary biologically active sugars" that should be added to our diets to promote proper immune function and cell-to-cell communication within our bodies.

.. What do they do?

The simplest way to understand this is to think of our cells communicating with each other. Cells have their own way of communicating with each other, and the language they use is one of touch, written in saccharides on the cell surfaces.

Basically, these sugars combine with other molecules to make glycoforms. When a glyconutrient combines with a protein molecule it becomes a glycoprotein. When a glyconutrient combines with a fat molecule it becomes a glycolipid.

These various glycoforms project from the cell surface like thousands of little hairlike fingers which will either understand the required functions of the adjoining cell, or not. If the cells are communicating correctly, the body functions smoothly. If not, it doesn't. It's as simple as that.

The glycoforms on the cell surface create a complex cellular messaging system that works to keep our hormones in balance, to fight off disease invaders, to enable blood to clot, and to give our cells their structural support network. This gives support to our immune system so that our bodies can restore and repair themselves.

You could watch a video which illustrates these cell structures and the role they play at <http://www.wellness-decisions.com/about-glyconutrients.html>

.. Why do we need them?

It has been suggested that Glyconutrients are the vital 'missing link' in our diets.

There is still no conclusive scientific understanding of how our body uses these glyconutrients or saccharides. However, as the interest and research in Glycobiology increases so does the evidence indicating the importance of them.

It is known that they help produce energy and play a key functional role in supporting our body's general state of health. They help to keep up our levels of glutathione, which is a naturally occurring antioxidant and antitoxin that is found in every cell of our body and is really important for the protection of major organs.

The thing to remember is that when the level of glutathione drops in your body, you are much more likely to come down with a chronic disease. A good reason to the levels up.

.. How this all came about.

In the early 1980s, a group of scientists who were attempting to isolate the medically active ingredient from the aloe vera plant, hired a research pharmacologist to find what caused the unique benefits of fresh aloe vera gel and why after processing, these benefits were no longer evident.

It was discovered, after lengthy research, that the active ingredient in the aloe vera gel was a long chain carbohydrate made up predominately of a sugar called Mannose. It became evident that within a day or two after the aloe leaf is picked, this long-chain sugar molecule rapidly begins to disintegrate, causing the gel to lose much of its effectiveness.

A new way of processing the aloe vera gel was perfected and patented. This method protected this long-chain sugar from being destroyed, and this new stabilized aloe extract was then made available to the public in the form of a juice, and the testimonies began to flow.

People with all kinds of health problems began reporting their improvement after taking the new product, and scientists could see they had their hands on something significant.

Carbohydrate structuring was a brand new science at that time and was only being taught at one or two universities in the world. Soon, however, researchers the world over began to study carbohydrates and by 1990 there had been around 4000 papers published about Glycobiology. An article appeared identifying carbohydrates as essential for immune function, and glycobiology as one of the 'hottest' new fields of medical research. Harper's Biochemistry, 1996, devoted a chapter to reviewing the sugars necessary for cell-to-cell communication.

It was found that, of the 200 carbohydrate monosaccharides, or sugars, found in nature, there were eight biologically active sugars (glyconutrients) that gave our cells their structural support network and were critical for cellular communication. These glyco or sugar forms work to keep our hormones in balance, fight off disease invaders, enable blood to clot and create a complex cellular messaging system. Of these eight vital sugars, only two were readily available

.. The eight sugars.

(Thanks to Emil Mondo M.D. and his book "Sugars That Heal" for these descriptions)

Glucose is the most common saccharide. Glucose combines with the saccharide, fructose, to become what we know as table sugar and is to be found in candy bars, cakes, ice cream and soft drinks. Bread, rice, pasta, vegetables, cereal, honey, corn syrup, and fruit also contain this sugar. Glucose is a potent fast-energy source that can be released directly into the bloodstream. Glucose also enhances memory, stimulates calcium absorption, and enhances cellular communication. Too much of it can raise insulin levels, leading to obesity and diabetes. Too little glucose can be problematic as well. Elderly Alzheimer's patients, for instance, register much lower glucose levels than those with organic brain disease from stroke or other vascular disease. In addition, glucose metabolism is disturbed in depression, manic-depression, anorexia, and bulimia.

Galactose is abundant in dairy products, where it coexists with glucose in a disaccharide called lactose. In animal studies, galactose inhibits tumour growth and its spread, or metastasis, particularly to the liver. The sugar also enhances wound healing, decreases inflammation, enhances cellular communication, and increases calcium absorption. Galactose supplementation helps protect mice exposed to X-ray radiation, from developing cataracts. Galactose levels are usually lower in people with adult and juvenile arthritis and in those with lupus. Studies also indicate that the saccharide triggers long-term memory formation.

Fucose is another sugar which is abundant in human breast milk and certain mushrooms and is known to influence brain development. Animal studies using fucose indicate that the saccharide may also help improve the brain's ability to create long-term memories. Fucose is an immune modulator as well, inhibiting tumour growth and its spread and enhancing cellular communication. High concentrations of fucose are found at the junctions between nerves, in the kidney and testes,

and in the outer layer of skin. Fucose metabolism is abnormal in cystic fibrosis, diabetes, and cancer and during episodes of shingles, which is caused by a herpes virus. (Shingles is a reactivation of dormant chicken pox virus.) Studies suggest the sugar is active against other herpes viruses, including herpes and cytomegalovirus. The saccharide also guards against respiratory tract infections and inhibits allergic reactions.

Mannose plays a major role in tissue remodelling and intelligent interactions between cells. The addition of mannose to your diet can accelerate the processes of cellular communication and healing; inhibit tumour growth and spread; and prevent bacterial, viral, parasitic, and fungal infections. It's necessary for the production of cytokines (the chemicals that make us feel achy when we're sick, which the body produces to fight invaders). Research suggests that mannose also eases inflammation in rheumatoid arthritis, and studies on lupus patients indicate a deficiency in this saccharide. Mannose also lowers blood sugar and triglyceride levels in diabetics.

Xylose is an antibacterial and antifungal and also fosters cellular communication. Research suggests that xylose may help prevent cancer of the digestive tract. Xylose absorption is decreased in some patients with intestinal disorders, including colitis. For diabetics and others watching their sugar intake, manufacturers often substitute xylose for sucrose and corn sweeteners in chewing gum and toothpaste. Unlike these sweeteners, xylose does not cause dental cavities.

N-acetylneuraminic acid is particularly important for brain development and learning, and is, not surprisingly, abundant in breast milk. Animal studies indicate that this essential saccharide also improves both memory and performance. In addition, it's an immune modulator that affects the viscosity of mucus, which in turn repels bacteria, viruses, and other pathogens. In several in vitro ("test tube") and animal studies, this saccharide has been shown to inhibit strains of influenza A and B viruses more effectively than such prescription antivirals as amantadine and ribavirin. It also influences blood coagulation, brain development, and cholesterol levels, lowering LDL, the so-called bad cholesterol. The processing of this sugar is disturbed in Sjogren's syndrome and in alcoholics. In general, levels of this saccharide decrease as we age.

N-acetylglucosamine is an immune modulator with antitumor properties and activity against HIV. Glucosamine, a metabolic product of N-acetylglucosamine, helps repair cartilage, decreases pain and inflammation, and increases range of motion in osteoarthritis. In addition, the saccharide is vital to learning. In one study, researchers found that after two groups of mice received glucosamine injections, the group given fifteen minutes' worth of avoidance-conditioning training (in which they were punished by electric shock for responding to some stimuli and rewarded with food for responding to others) incorporated nearly double the amount of glucosamine into their brains as the mice that were not trained and were kept quietly in a cage. Glucosamine may also help repair the mucosal-lining defensive barrier called the glycosaminoglycan layer, or GAG layer for short. Defects in the GAG layer have been implicated in Crohn's disease, ulcerative colitis, and interstitial cystitis.

N-acetylgalactosamine research has been limited, but we do know that the saccharide inhibits tumour spread and enhances cellular communication. Lower-than-normal levels of this sugar have been found in patients with heart disease.

.. How do we avoid disease and stay healthy.

Our body is said to be in a state of "dis-ease" when its immune system is having to work hard in response to some pathogen or toxin or some other stress, and consequently is not at its normal state of "ease" and balance.

So that our cells are able to defend and repair and keep our tissues in a healthy state, they need to be in top condition and to be communicating successfully. If there is a deficiency in certain nutrients, the body will not be able to do this job of defending and repairing as efficiently as it should.

The five main needs of our body to keep it operating efficiently are:

- * air - good clean air (not always available in our modern world)
- * water - our water is often contaminated with all sorts of toxins these days
- * sleep - regular and undisturbed sleep is best
- * exercise - we need to exercise often
- * good nutrition - unfortunately it is almost impossible to achieve a perfect diet and get all the nutrients that our body needs

Keeping our cells healthy will mean a healthy body, but

..how do we do that?

We've established that it is absolutely vital that all of these eight sugars are available to our cells for them to do properly what is required of them. Our body is capable of manufacturing all of these 8 sugars, but, to do that, it must have a constant source of extremely high quality building materials - ie lots of high quality highly nutritious food.

Unfortunately, our 21st century diet leaves a lot to be desired. So much of our food is processed and stripped of nutrients and we can't even be sure always of the quality of our fruit and vegetables. That means, of course, that we are not getting the nutrition that we need.

Mannatech, a leading research & development company that was responsible for the initial discovery of glyconutrients, developed and patented a range of dietary glyconutritional supplements that are scientifically extracted from natural sources and prepared to exacting standards. These Dietary Supplements are rich in antioxidants & amino acids and restore the missing glyconutrients to our diets.

It is worth remembering that Glyconutrients are not drugs and are not a cure for any particular illness. All they do is help the body to function normally (as it should) so the body can heal itself. Accurate communication between cells is VITAL for proper health and to synchronize many bodily functions. The absence of one or more of the eight essential saccharides can manifest in the body in the form of illness or immune system malfunction.

As mentioned earlier, the body is capable of producing those sugars that are lacking if all is balanced and well with the cellular structure. If, however, the body is compromised in any way, then it would seem prudent to add the eight vital sugars in supplement form.

Including glyconutrients in our diets and/or taking glyconutrient supplements (just like we take vitamin and mineral supplements) is a way of helping to maintain proper health and longevity by boosting and assisting the immune system to fight bacteria, viruses and parasites and to overcome and recover from many illnesses.

There are many excellent books available about Glyconutrients and a myriad of papers have been written and clinical trials are continually being conducted. Although it must be stressed that "*Glyconutrient supplements are not intended to diagnose, treat, cure or prevent any disease*", there are countless people around the world who are using Glyconutrients with amazing results and are convinced that they owe their lives to these supplements.

Here are a few snippets from testimonials of people I know personally who have been, and are, taking glyconutrients.

... Our creaky arthritic knees improved, the arthritis that was developing in my hands, disappeared, as did Geoff's gout...

... After starting on the glyconutrients her sugar levels slowly came down to normal and her muscle enzyme count kept coming down so her medication was slowly reduced until finally four months ago her blood tests were so perfect her specialist could see no reason to continue with the prednisone. Mum has her life back doing everything that she has always done

... I was struck down without warning by acute diverticulitis at the beginning of May, 2004. I was hospitalised for 6 days on multiple antibiotic drips. The specialist surgeon wanted to operate at the time, but because of the severe infection, he requested a colonoscopy in about 6 weeks, to give the infection time to heal, but advised me to accept the fact that I would have to have surgery. after two months when I returned for the scheduled colonoscopy, the attending surgeon said to me "Whatever you do, don't let anyone talk you into surgery, you do not need it."

... Within three weeks I noticed, not only a decrease in my general aches and pains, but that my left shoulder, which had been operated on in late 2003 was no longer aching,

You can see more about these products at <http://www.wellness-decisions.com/glyconutrient-products.html> You will need the password (wellness_friends) to access this page. Other websites to search are <http://www.exploremannatech.com> and <http://www.mannatechscience.org>

I hope this report has been helpful to you and I look forward to having you as one of my 'wellness friends'.

If you would like to be part of my team of associates who are spreading the word and happily using glyconutrient products because of the benefits they experience, please contact me or you could go directly to <http://www.mannatech.com> To purchase products or to join my organisation you will need my Associate Number: 2099927 (Geoff and Jane Aslett) .

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