Array 3X – Part 5

This is another patient that would likely be missed with conventional testing.

TEST	RESULT			
Array 3 – Wheat/Gluten Proteome Reactivity & Autoimmunity	IN RANGE (Normal)	EQUIVOCAL*	OUT OF RANGE	REFERENCE (ELISA Index)
Wheat IgG	1.03			0.3-1.5
Wheat IgA			1.30	0.1-1.2
Wheat Germ Agglutinin IgG	0.93			0.4-1.3
Wheat Germ Agglutinin IgA			1.31	0.2-1.1
Native & Deamidated Gliadin 33 IgG			2.26	0.2-1.2
Native & Deamidated Gliadin 33 IgA			1.36	0.1-1.1
Alpha Gliadin 17-mer IgG	0.61			0.1-1.5
Alpha Gliadin 17-mer IgA	0.87			0.1-1.1
Gamma Gliadin 15-mer IgG	0.55			0.5-1.5
Gamma Gliadin 15-mer IgA	0.72			0.1-1.0
Omega Gliadin 17-mer IgG			1.41	0.3-1.2
Omega Gliadin 17-mer IgA			1.55	0.1-1.2
Glutenin 21-mer IgG	0.73			0.1-1.5
Glutenin 21-mer IgA		1.20		0.1-1.3
Gluteomorphin + Prodynorphin IgG	0.58			0.3-1.2
Gluteomorphin + Prodynorphin IgA		1.15		0.1-1.2
Gliadin-Transglutaminase Complex IgG	0.74			0.3-1.4
Gliadin-Transglutaminase Complex IgA	0.93			0.2-1.5
Transglutaminase-2 IgG	0.59			0.3-1.6
Transglutaminase-2 IgA		1.27		0.1-1.6
Transglutaminase-3 IgG	0.47			0.2-1.6
Transglutaminase-3 IgA	0.72			0.1-1.5
Transglutaminase-6 IgG	0.71			0.2-1.5
Transglutaminase-6 IgA		1.31		0.1-1.5

38-year old male

CC: mild sleep disturbance, stalled weight loss, skin problems, high blood sugar

No digestive complaints other than very occasional gas

Primary concern was family history of heart disease

It's a 38-year-old male, chief complaint was mild sleep disturbance, stalled weight loss, skin problems, and high blood sugar. He had no digestive complaints other than very occasional gas with eating certain foods. His primary concern actually in coming to see me was a family history of heart disease, so he didn't really have a lot of physical complaints, he was just concerned, wanting to prevent heart disease as much as possible given his family history. But as you can see here, he was having a strong reaction to various wheat peptides, he was reacting to wheat itself, IgA antibodies out of range, wheat germ agglutinin, IgA, both IgG and IgA to native deamidated gliadin, IgG and IgA to omega-gliadin and then some equivocal antibody production to glutenin, gluteomorphin, and prodynorphin transglutaminase-2 and transglutaminase-6.

So as you can see, he's having a strong reaction, but mostly, with the exception of transglutaminase-2, to proteins and enzymes that are not screened for in the typical mainstream assessment, and although this patient did not have an obvious reaction to wheat or gluten that he was aware of, he did improve significantly on a strict gluten-free diet. And you'll find this a lot, the patient comes in to see you ostensibly for one thing like family history of heart disease, and they claim that they don't really have significant symptoms, and then you clean up their diet and address some of their underlying pathology, and they come back to you and say, well I didn't realize actually that I did have these complaints because I've been living with them for so long, I

guess I just got used to them, and now, I thought my energy was good but now it's really good, and I thought … now I'm losing weight and my skin has cleared up, and that's part of the deal of being a human being I guess, we're really remarkably adaptable, and we can get used to sub-optimal health and it just becomes a norm, and not everyone who is in that situation will even seek out help for it, so just another illustrative case history on all of those points.

TEST	RESULT			
Array 3 – Wheat/Gluten Proteome Reactivity & Autoimmunity	IN RANGE (Normal)	EQUIVOCAL*	OUT OF RANGE	REFERENCE (ELISA Index)
Wheat IgG		1.35		0.3-1.5
Wheat IgA		0.98		0.1-1.2
Wheat Germ Agglutinin IgG			3.18	0.4-1.3
Wheat Germ Agglutinin IgA			2.47	0.2-1.1
Native & Deamidated Gliadin 33 IgG			2.22	0.2-1.2
Native & Deamidated Gliadin 33 IgA		1.09		0.1-1.1
Alpha Gliadin 17-mer IgG			4.35	0.1-1.5
Alpha Gliadin 17-mer IgA			1.46	0.1-1.1
Gamma Gliadin 15-mer IgG			8.35	0.5-1.5
Gamma Gliadin 15-mer IgA		0.85		0.1-1.0
Omega Gliadin 17-mer IgG			>5.50	0.3-1.2
Omega Gliadin 17-mer IgA	0.61			0.1-1.2
Glutenin 21-mer IgG			>5.00	0.1-1.5
Glutenin 21-mer IgA		1.10		0.1-1.3
Gluteomorphin + Prodynorphin IgG		1.18		0.3-1.2
Gluteomorphin + Prodynorphin IgA	0.66			0.1-1.2
Gliadin-Transglutaminase Complex IgG			3.39	0.3-1.4
Gliadin-Transglutaminase Complex IgA		1.25		0.2-1.5
Transglutaminase-2 IgG			3.33	0.3-1.6
Transglutaminase-2 IgA			2.51	0.1-1.6
Transglutaminase-3 IgG			>5.20	0.2-1.6
Transglutaminase-3 IgA		1.25		0.1-1.5
Transglutaminase-6 IgG			3.31	0.2-1.5
Transglutaminase-6 IgA	0.90			0.1-1.5

35-year old male

CC: weight, cholesterol, blood pressure, heart disease risk

No digestive complaints; described himself as "generally in good health"

Only noticeable symptom was mild fatigue

And this is the last case study we're going to look at as part of the Cyrex Array 3 unit, and it's really a prime example of how important this testing can be.

It was almost hard to understand this because it was so dramatic, but the chief complaint here for this patient, it was a 35-year-old male, much like the last patient, they didn't really have physical symptoms that were bothering them, all of their complaints were more related to markers. He had high cholesterol, he had a strong history of heart disease, he had mild hypertension that would come and go, and he was maybe very slightly overweight or his body … he wanted to lean out a little bit, he was a weightlifter, CrossFitter, actually owned a CrossFit gym, so really fit and healthy overall, didn't have any digestive complaints, described himself as being in great health for the most part. He did have fatigue occasionally, but it was mostly related to not sleeping well and overworking when he was doing too much work and not doing the things he knows he needs to be doing, but that was of course mostly lifestyle-related.

But take a look at the results here, when Cyrex Array 3 came back. It was one of the most aberrant panels that I've ever seen. He only had three antibodies that were in range, the rest were equivocal or out of range, and of the out-of-range ones, many were above three or four, some were even above five which is above the cutoff, they don't even measure above that.

Transglutaminase-3 was above five, glutenin was above five, omega-gliadin was above five, alpha-gliadin was 4.35, so just a massive reaction here against wheat and gluten-related peptides.

TEST	RESULT			
Array 4 – Gluten-Associated Cross-Reactive Foods and Foods Sensitivity **	**IN RANGE (Normal)**	**EQUIVOCAL***	**OUT OF RANGE**	**REFERENCE** (ELISA Index)
Rye, Barley, Spelt, Polish Wheat			1.74	0.4-1.4
Cow's Milk		1.11		0.1-1.3
Casein (Alpha & Beta)			2.32	0.1-1.7
Casomorphin			4.37	0.2-1.6
Milk Butyrophilin		1.56		0.2-1.8
Whey Protein		1.15		0.1-1.3
Chocolate (Milk)			2.37	0.1-1.4
Oats			1.50	0.2-1.0
Yeast			1.45	0.2-1.2
Coffee			>3.30	0.3-1.9
Sesame			1.54	0.1-1.3
Buckwheat			1.76	0.4-1.3
Sorghum			2.40	0.3-1.2
Millet			1.82	0.3-1.5
Hemp			1.75	0.3-1.5
Amaranth			1.70	0.2-1.3
Quinoa			1.56	0.5-1.5
Tapioca			2.74	0.1-1.1
Teff			2.58	0.2-1.1
Soy		1.35		0.5-1.5
Egg			2.73	0.2-1.7
Corn		1.37		0.3-1.4
Rice			2.90	0.4-1.6
Potato			2.37	0.6-1.4

So we went on to do Cyrex Array 4, and it's even more dramatic. He was producing antibodies to every single protein on the panel here, and only five of those were equivocal, the rest were out of range, again several of them were significantly out of range. He was positive for every protein that cross-reacts with gluten and a bunch of other proteins as well. And then we went ahead and we did Cyrex Array 5, and this was shocking. Every single antibody to every single tissue on this test was out of the lab range, not even equivocal, just all out of the lab range, and again significant elevations, many above three, several above four, so these are things like parietal cell, ATPAs, which would be involved in production of intrinsic factor in stomach acid, intrinsic factor itself, ASCA and ANCA, which are involved in inflammatory bowel disease, tropomyosin, thyroglobulin, thyroid peroxidase, those last two are thyroid-related, antibodies to ovary and testes, arthritic peptide, fibulin, collagen complex for joint health, insulin and islet cells and glutamic acid decarboxylase, metabolic health, insulin.

TEST	RESULT			
Array 5 – Multiple Autoimmune Reactivity Screen **	**IN RANGE (Normal)**	**EQUIVOCAL***	**OUT OF RANGE**	**REFERENCE** (ELISA Index)
Parietal Cell + ATPase			3.90	0.1-1.4
Intrinsic Factor			4.59	0.1-1.2
ASCA + ANCA			2.84	0.2-1.4
Tropomyosin			3.85	0.1-1.5
Thyroglobulin			3.21	0.1-1.3
Thyroid Peroxidase			2.40	0.1-1.3
21-Hydroxylase (Adrenal Cortex)			4.42	0.2-1.2
Myocardial Peptide			2.46	0.1-1.5
Alpha-Myosin			2.92	0.3-1.5
Phospholipid			2.92	0.2-1.3
Platelet Glycoprotein			6.26	0.1-1.3
Ovary/Testis ***			3.22	0.1-1.2
Fibulin			2.54	0.4-1.6
Collagen Complex			2.75	0.2-1.6
Arthritic Peptide			2.68	0.2-1.3
Osteocyte			3.99	0.1-1.4
Cytochrome P450 (Hepatocyte)			2.09	0.3-1.6
Insulin + Islet Cell			4.02	0.4-1.7
Glutamic Acid Decarboxylase 65			3.47	0.2-1.6
Myelin Basic Protein			4.21	0.1-1.4
Asialoganglioside			3.42	0.1-1.4
Alpha-Tubulin + Beta-Tubulin			2.73	0.4-1.4
Cerebellar			3.09	0.2-1.4
Synapsin			4.22	0.1-1.2

Every tissue they test for, he was producing antibodies to, and this is clearly an example of an immune system that was out of control, it's known as polyphasic hyperactivity characterized by a severe loss of tolerance to food or environmental antigens, and subsequent production of these polyphasic antibodies can react to just about everything, but once again, the craziest thing about this is that his only symptom that was noticeable was mild fatigue, and again this is the kind of patient that's completely missed by the conventional system, and unfortunately, though this is an extreme case, we see patients all the time that are missed by the conventional system, and of course that's why they're coming to us in the first place.

If you do see a patient like this, that has this kind of polyphasic hyperactivity, they're making these antibodies that are reacting to everything, then you absolutely must test for all of the things that can trigger immune dysfunction, like gut issues, heavy metals, mold or other biotoxins, other environmental toxins, chronic infections, and of course, food intolerances. And with this particular patient, we're still in progress with some of that, he's a more recent patient, but we already know that he had mercury toxicity from dental amalgams, higher levels of mercury in the body, he had SIBO which was silent, meaning no significant or noticeable

symptoms, and probably exposure to mold, although we're still figuring that out, so very interesting case study.

This slide shows a matrix of how to interpret antibodies against wheat, gluten, and enzyme antigens that are part of the Cyrex Array 3.

Interpretation of antibodies against wheat, gluten and enzyme antigens

Positive reaction to:	Gluten-Sensitivity	Wheat & Gluten-Sensitivity	Wheat-Sensitivity	Lectin-Sensitivity	Auto-Immune Reaction	Interpretation	Clinical Approach
Wheat		x	x			Wheat sensitivity due to lack of digestive enzymes.	Wheat-free diet, heal gut
WGA		x	x	x		Sensitivity to wheat germ and sprouted wheat	Check for other lectin sensitivity
γ-Gliadin-15-mer	x	x				One or any combination of positives means sensitivity to specific gluten epitopes due to lack of enzymes, in particular DPPIV	Gluten-free diet, heal gut. Check for extra-intestinal autoimmunity
α-Gliadin-17-mer	x	x					
α-Gliadin-33-mer	x	x					
ω-Gliadin-17-mer	x	x					
Glutenin-21-mer	x	x	x				
Gluteomorphin + Pro-dynorphin		x	x			Immune reaction to opioid peptides, due to lack of digestive enzymes, in particular DPPIV	Patient is "addicted' to wheat

Adapted from: Cyrex Array 3 Clinical Applications Guide (http://cyrexlabs.com)

We're going to include this as a clinician handout for you, kind of as a quick reference so you can just look at it if you're new to interpreting this kind of testing, you can just whip this out and take a look at it, and it can help you make an interpretation and determine your clinical approach. So, for example, if you just pick wheat germ agglutinin, WGA here on the matrix, it's indicative of wheat and gluten sensitivity, or wheat sensitivity and obviously lectin sensitivity since it is a lectin, the interpretation would be sensitivity to wheat, particularly wheat germ and sprouted wheat, and in terms of clinical approach you'd want to check sensitivity to other lectins, and Cyrex recommends removing all lectins from the diet if you test positive for any lectin, like wheat germ agglutinin, that you would remove all lectins from your diet, and we'll talk about that more in the context of Cyrex Array 4 and Array 10 testing.

And the next slide here is just a continuation of that same matrix.

Interpretation of antibodies against wheat, gluten and enzyme antigens

Positive reaction to:	Gluten-Sensitivity	Wheat & Gluten-Sensitivity	Wheat-Sensitivity	Lectin-Sensitivity	Auto-Immune Reaction	Interpretation	Clinical Approach
Gliadin-tTG2 Complex	x	x			x	Autoimmunity associated with wheat sensitivity	Remove trigger, Use anti-inflammatories
tTG2					x	Possible **GI** autoimmunity associated with wheat sensitivity, if wheat antigens are also positive	
tTG3					x	Possible **skin** autoimmunity associated with wheat sensitivity, if wheat antigens are also positive	
tTG6					x	Possible **brain** autoimmunity associated with wheat sensitivity, if wheat antigens are also positive	

Adapted from: Cyrex Array 3 Clinical Applications Guide (http://cyrexlabs.com)

So if we look down at tGT-2, tGT-3, tGT-6, they're all indicative of an autoimmune reaction, and you can see they're obviously differentiated there according to what tissue is likely to be having that reaction, and you can cross-reference that with the other antibodies to determine if it's contributed to a reaction to gluten. Okay, that's it for Cyrex Array 3, make sure to check out the supplemental resources, the handouts that we're providing for this unit or this section of the unit, there's a lot of material we're going to give to you to make this stuff easier, and also check out Cyrex's website once you set up your account with them. They have a clinical applications guide that is really extensive, they have information about how to interpret these tests. I've condensed and distilled that into what I think is the most important stuff to know, but if you want to go deeper or wider, broader, there's some good resources on Cyrex's website. In the next section, we're going to talk about Array 4, which is the gluten-associated cross-reactive foods and food sensitivity panel. See you then.