TESTING SNAPSHOT

DOCTOR'S DATA INC.
SCIENCE + INSIGHT

ASSESSING COELIAC DISEASE and non-Coeliac Gluten Sensitivity

The Nature of Gluten

Gluten is a collective term for the series of hardy proteins that give strength and integrity to many grass seeds (cereal grains). The term 'Gluten' is almost exclusively used to refer to that of Wheat, Rye, Barley and often Oats, and therefore so will the following.

Wheat Gluten is made of numerous protein sub-fractions. These are predominantly divided into Gliadins and Glutenins (which occur in about even proportions within most forms of gluten).

The viscoelasticity that gluten affords to many culinary traditions is attributable primarily to the concatenating structures formed by the interaction of high and low molecular weight Glutenins that constitute the insoluble components of gluten.

The Gliadins on the other hand constitute the more soluble components and can be divided into further sub-fractions within the categories of α-gliadin, β-gliadin, γ-gliadin, and ω-gliadin.

What Makes Gluten So Problematic As A Source of Food-Based Reactivity?

> ***Due to it being, by nature, highly resistant to digestion, gluten has been associated with numerous digestive and inflammatory complaints. However the degree that this is so, appears to stem well beyond the merely structural.***

Due to possessing some relatively unique and formidable characteristics of its own, and being invariably accompanied by numerous other potentially disruptive and anti-nutrient compounds, gluten and the grains that contain it, appear to have an entire swathe of physical and metabolic consequences, all of which appear to be almost universally inflammatory.

DDi's Gluten Sensitivity Panel is the best determination of Coeliac we can achieve in the blood but it's not limited to only Coeliac, it checks for the 'other possibilities' – Non-Coeliac gluten sensitivities.

tTG has been used since the mid-90's-2000's as the best marker to use for Coeliac in the blood. DGP came about more recently and is a valuable addition to gluten reactivity screening and picks up the subset of the population that tTG may not be as reliable for (i.e. children and IgA deficient individuals).

tTG (Tissue Transglutaminase) is an enzyme that facilitates cross-linkage of extracellular matrix proteins in the tissue in an effort to repair injured and inflamed tissue. Gluten can trigger an abnormal response whereby the body perceives it as foreign antigens and thus antibodies to tTG are produced causing the repair function of Transglutaminase to NOT do its job. These auto-antibodies (anti- tTG) can be detected through serum blood draw providing 'gold standard' assessment in screening Coeliac Disease (CD). Despite being a categorical marker of CD, there is a small subset of individuals that you may see variability in using tTG alone (children & IgA deficient individuals), therefore, Deamidated Gliadin Peptides (DGP) are assessed to pick up the short-fall of tTG in those individuals. This allows the serum option to be the most comprehensive assessment available (short of doing a histological analysis of the small intestinal mucosa) which offers detection and differentiation of Coeliac Disease, Non-Coeliac Gluten Sensitivity, Wheat Allergy and IgA Insufficiency in a diverse range of populations.

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Serum vs. Blood Spot for Doctors Data Gluten Sensitivity Panels

SERUM DRAW *(Total IgA, Wheat IgE, tTG (IgA, IgG), DGP (IgA, IgG), Gliadin (IgA, IgG)*	BLOOD SPOT *(Gluten (IgG), DGP (IgA, IgG), Gliadin (IgA, IgG)*
• ***Gold Standard*** assessment for Coeliac detection because it includes multiple markers to catch any variances in population (specifically children, IgA deficient individuals). • Also differentiates between Coeliac Disease, Non-Coeliac Gluten Sensitivity, Wheat Allergy and IgA Insufficiency. • Some level of Gluten exposure is still required, however, DGP can still be detected in 80% of Gluten responders. ***Markers tested:*** • Tissue Transglutaminase (tTG) Antibodies IgA (includes all iso-forms – 2, 3 and 6) • Tissue Transglutaminase (tTG) Antibodies IgG (includes all iso-forms – 2, 3 and 6) • Deamidated Peptide (DGP) Antibodies IgA • Deamidated Peptide (DGP) Antibodies IgG • Gliadin Antibodies (IgA) (includes all sub-fractions – α, β, γ and ω) • -Gliadin Antibodies (IgG) (includes all sub-fractions – α, β, γ and ω) • IgE Wheat Antibodies • Total Serum IgA	• Offers DGP markers for Coeliac detection (particularly in children and IgA deficient individuals) • Offers indications of Non-Coeliac Gluten Sensitivity. • Some level of Gluten exposure is still required, however, DGP can still be detected in 80% of Gluten responders. • Needs to be combined with the tTG for comprehensive Coeliac assessment. *US Biotek – Coeliac Antibody Panel Blood Spot (tTG (IgA), Gliadin (IgA, IgG)). ***Markers tested:*** • Deamidated Peptide (DGP) Antibodies IgA • Deamidated Peptide (DGP) Antibodies IgG • Gliadin Antibodies (IgA) (includes all sub-fractions – α, β, γ and ω) • Gliadin Antibodies (IgG) (includes all sub-fractions – α, β, γ and ω) • Gluten Antibodies (IgG)

Which is better out of tTG and DGP?

> ***There are cases where individuals may respond better in one or the other thus combining the two (which is offered through DDI serum test) is showing the whole story.***

Key Points for DDI Serum Test:

- Assesses both IgG tTG and IgA tTG separately and assesses all iso-forms (other labs don't test all iso-forms; just number 2).
- Assesses DGP for both IgG and IgA for covering those individuals that are IgA deficient (a fair number of people nowadays) and children.
- Assesses both Anti Gliadin IgG and IgA; assesses all sub-fractions (other labs don't test all sub-fractions; just α-gliadin).
- Assesses IgE Wheat Antibodies.
- Assesses Total Serum IgA.
- Good thing about this test is that it provides insight into Coeliac and NON-Coeliac Gluten Sensitivity.

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