

RMA FST

Accession: 542072

Healthcare Professional

Belmont Natural Health Centre
Tom Daly
201 - 690 Belmont Ave W
Kitchener, ON N2M 1N6

Patient

Emma Bucholtz
132 Asmus Street
New Hamburg, ON N3A 1B1
P:226-747-5240

Age: 30
Date of Birth: 1986/03/12
Gender: Female

P: 519-578-7489
F: 519-578-9747

IMPORTANT INFORMATION: Regarding RMA FST™ Report

Updated Reference Ranges for Optimization

Based on statistical analysis of a large body of patients tested at RMA, the Medical Director, Dr. Gillson made changes to the reporting thresholds of some foods, to improve the consistency of the test results as they apply to our population. No changes in the degree to which each food reacts in the assay were made; the numbers are still the same.

Why Update the Reporting Thresholds for Some Foods?

When we graph the ranked reactivities of most foods for a large population, we observe a fairly consistent curve (Figure 1). The inflection point of the curve, where reactivity increases markedly, tends to occur about the 75th percentile, which coincides with a result of 30. In other words, approximately 25 out of 100 people tested will have a result of 30 or higher, for most foods.

Some foods do not fit the pattern shown in Figure 1; instead, a result of 30 appears very “early” in the distribution and a much larger fraction of the population will get a “red” result (Figure 2). This is the case for about 10% of the foods we test.

In response to feedback received since launching the FST test in September 2015, the following changes have been made to the foods that followed the pattern shown in Figure 2:

1. The upper limit of the green zone has been extended to 30;
2. The yellow or “Borderline” zone has been widened. A wider “Borderline” zone allows the practitioner more leeway to interpret the findings in the context of his or her clinical experience, also taking into consideration the overall pattern of reactivities across all foods tested, and the symptom complex with which the patient presents.

In this new format, a red result once again is reserved for those patients whose result for that food lies in the top quartile of the population (shown in Figure 3). The foods impacted by this change are listed below. Figure 1 still applies to the majority of foods.

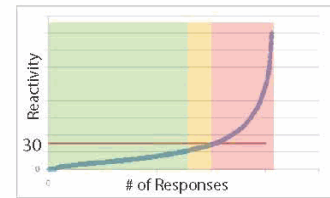


Figure1 Population Research Curve for Most Foods

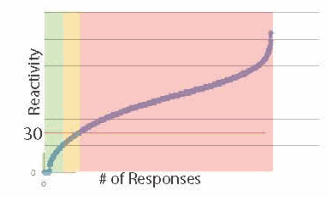


Figure 2 Population Research Curve for Reactive Foods

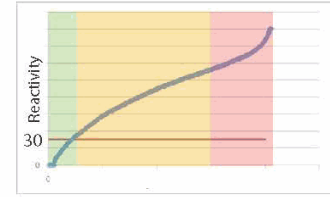


Figure 3 Population Research Curve for Updated Foods

Updated Foods	Green Range	Yellow Range	Red Range
Agar Agar	0 to 30	31 to 54	55+
Almond	0 to 30	31 to 49	50+
Barley	0 to 30	31 to 49	50+
Bean, Red Kidney	0 to 30	31 to 47	48+
Bean, White Haricot	0 to 30	31 to 44	45+
Casein	0 to 30	31 to 97	98+

Updated Foods	Green Range	Yellow Range	Red Range
Cola Nut	0 to 30	31 to 58	59+
Corn (Maize)	0 to 30	31 to 46	47+
Egg White	0 to 30	31 to 99	100+
Gliadin	0 to 30	31 to 50	51+
Hazelnut	0 to 30	31 to 37	38+
Milk (Cow)	0 to 30	31 to 114	115+

Updated Foods	Green Range	Yellow Range	Red Range
Milk (Goat)	0 to 30	31 to 63	64+
Milk (Sheep)	0 to 30	31 to 66	67+
Pea	0 to 30	31 to 66	67+
Peanut	0 to 30	31 to 43	44+
Pistachio	0 to 30	31 to 50	51+
Wheat	0 to 30	31 to 66	67+
Yeast (Brewer's)	0 to 30	31 to 58	59+

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FOOD GROUP Report

RESULT STATUS

NORMAL

NOTE: The limits assigned to individual antigens are based on a statistical analysis of a Canadian population

The upper limit for assigning **Normal** status varies by antigen.

BORDERLINE

The upper and lower limits for assigning **Borderline** status vary by antigen.

ELEVATED

The lower limit for assigning **Elevated** status varies by antigen.

Dairy / Egg

0 Alpha-Lactalbumin (whey)	4 Beta-Lactoglobulin (whey)	95 Casein
72 Egg White	10 Egg Yolk	159 Milk (Cow)
64 Milk (Goat)	79 Milk (Sheep)	

Grains

57 Barley	23 Durum Wheat	56 Gliadin
8 Oat	6 Rye	74 Wheat
17 Wheat Bran		

Grains (Gluten-Free)

1 Buckwheat	83 Corn	0 Millet
22 Rice		

Fruit

2 Apple	4 Apricot	6 Avocado
4 Banana	10 Black Currant	49 Blackberry
9 Cherry	13 Cranberry	7 Grape (Black/Red/White)
9 Grapefruit	0 Kiwi	3 Lemon
9 Lime	3 Melon (Galia/Honeydew)	9 Nectarine
1 Olive	32 Orange	1 Peach
4 Pear	4 Pineapple	33 Plum
36 Raspberry	3 Strawberry	

Vegetables

0 Asparagus	5 Beet	10 Bell Peppers
17 Broccoli	8 Brussels Sprout	29 Cabbage (Savoy/White)

Vegetables

6	Carrot	11	Cauliflower	33	Celery
6	Chicory	16	Cucumber	4	Eggplant
5	Leek	5	Lettuce	11	Onion
29	Potato	9	Spinach	3	Tomato

Fish / Seafood

11	Cod	10	Crab	4	Haddock
3	Herring	8	Lobster	8	Mackerel
5	Mussel	4	Oyster	8	Plaice
5	Salmon	6	Scallop	6	Shrimp/Prawn
19	Sole	1	Swordfish	8	Trout
6	Tuna	0	Turbot		

Meat

4	Beef	2	Chicken	3	Duck
8	Lamb	6	Pork	8	Turkey
2	Veal	7	Venison		

Herbs / Spices

7	Basil	40	Cinnamon	0	Clove
0	Coriander (Leaf)	4	Cumin	3	Dill
2	Garlic	4	Ginger	16	Hops
3	Mint	7	Mustard Seed	22	Nutmeg
8	Parsley	4	Peppercorn (Black/White)	6	Red Chili Pepper
5	Sage	0	Thyme	0	Vanilla

Nuts / Seeds / Legumes

14	Almond	6	Bean (Green)	31	Bean (Red Kidney)
38	Bean (White Haricot)	11	Brazil Nut	0	Canola
32	Cashew Nut	2	Coconut	45	Hazelnut
12	Lentil	47	Pea	37	Peanut
66	Pistachio	0	Sesame Seed	48	Soy Bean
39	Sunflower Seed	7	Walnut		

Miscellaneous

13	Cane Sugar	3	Carob	3	Cocoa Bean
4	Coffee	11	Mushroom	1	Tea (Black)
0	Tea (Green)	102	Yeast (Baker's)	129	Yeast (Brewer's)

IgG FOOD REACTIONS VS IgE FOOD ALLERGIES: IgG food reactions differ significantly from classic IgE food allergies. IgE food allergies are immediate reactions that occur within minutes or hours of consuming a food and may include serious reactions like hives, difficulty breathing and anaphylaxis. In contrast, an IgG food sensitivity is a delayed reaction that occurs hours to days after the food is consumed, with symptoms that may not appear for days or months. Lack of an IgG antibody response to a specific food does not rule out the possibility that the food may elicit an IgE reaction (food allergy). Patients should continue to avoid foods to which they have a known IgE food allergy. Conversely, elevated IgG to a specific food is not diagnostic of IgE food allergy. If symptoms (e.g. hives, difficult breathing) are suggestive of food allergy, the patient should be referred to an Allergist Specialist for specific IgE testing via ImmunoCAP.

IgG REACTIONS: IgG reactions are food sensitivities, not food allergies. When a reactive food is consumed, the IgG antibody forms a complex with the food antigen. Normally, the body is able to eliminate these antibody-antigen complexes, but with excess antigen, small complexes tend to deposit in blood vessel walls where they can cause tissue injury via the release of inflammatory mediators [Brantzaeg 1997]. Over time, this tissue injury may contribute to the development of a variety of health conditions. Research has shown that elimination of IgG reactive foods from the diet improves a variety of health conditions including irritable bowel syndrome and migraine headaches [Atkinson, Alpay]. Eliminating IgG reactive foods has also been reported to help with eczema, mood disturbances, weight gain and other digestive disturbances [Mullin, Lewis, Bentz].

NORMAL REACTIONS: A normal reaction to a food antigen may indicate lack of recent exposure to that food. Therefore, under circumstances of complete avoidance, it is impossible to determine whether the food(s) avoided would elicit a reaction if consumed recently. It is important to note that a normal reaction to a specific food does not mean it can be safely consumed by someone who has previously had a serious reaction to that specific food. Serious reactions to foods (e.g. anaphylaxis or hives) are caused by IgE antibodies, not IgG. Therefore, a normal IgG reaction to a known food allergen is not an indication the tested food is safe to consume.

PATIENT HAS A REACTION TO ONE OR MORE FOOD ANTIGENS NOT CONSUMED REGULARLY: It is possible to have elevated IgG to foods not recently consumed, or to foods that have been specifically avoided (i.e. due to serious previous IgE reaction). Elevated IgG in this circumstance may be due to panallergen reactions [refer to the RMA FST Food Sensitivities and Cross-Reactions document], or to an abundance of the IgG4 subtype antibody, which acts on mast cells and may have a protective effect for IgE reactions and antibodies may remain in circulation for 18 months even with no exposure [Mullin].

CANDIDA IS ELEVATED: According to research by Lewith et al., elevated IgG antibodies to Candida are suggestive of fungal-related illness [J Alt Comp Med. 2007;13(10):1129-33]. Although IgG reactivity to Candida does not necessarily correlate with Candida burden, it does suggest that the individual is experiencing an immunological response to Candida. Reducing the burden of Candida in the gut may help to reduce the immunologic response.

GOAT'S MILK AND/OR SHEEP'S MILK ARE BORDERLINE OR ELEVATED but patient may have never consumed: In vitro studies have shown extensive cross reactivity between milks from ruminant species. Significant amino acid sequence homology between milk from cows, goats and sheep mean cross-reactivity is highly probable [URL: www.uptodate.com/contents/milk-allergy-management. Accessed June 11, 2016]. Clinical research has found that a significant percentage of cow's milk allergic patients also react to goat and sheep milks [Pediatr Allergy Immunol. 2012 Mar;23(2):128-32].

WHEAT IS BORDERLINE OR ELEVATED AND WHEAT BRAN IS NORMAL: Wheat is a 42 chromosome member of the Triticum genus that is comprised of the whole cereal grain; endosperm, aleurone and pericarp. Wheat bran is the hard exterior coating of the wheat grain (aleurone and pericarp) that contains a high percentage of fibre and fatty acids. The difference in reactivity between wheat and wheat bran may be explained by the presence of allergenic proteins in the endosperm of whole wheat [Clin Exp Allergy. 1990;20(5):501-509], versus fibre and fatty acids found in the exterior shell of the wheat bran.

GLIADIN IS ELEVATED AND DURUM WHEAT IS NORMAL: Note that a NORMAL finding for DURUM WHEAT in this case is negated by the finding of ELEVATED GLIADIN, which is still present in durum wheat, albeit in lesser quantity than common wheat. Research has shown that the amount of gliadin increases with the number of chromosomes: durum wheat is a tetraploid species with 28 chromosomes, whereas common wheat is a hexaploid species with 42 chromosomes. Thus, the lower gliadin content of durum wheat may contribute to a finding of NORMAL, but the sensitivity to gliadin remains, so all gliadin-containing grains may need to be avoided [BMC Genomics. 2009;10:48].

BREWER'S YEAST IS BORDERLINE OR ELEVATED: Note that Brewer's Yeast and Baker's Yeast are different strains of one organism, *Saccharomyces cerevisiae*. The Brewer's Yeast strain is slower acting and has less after-taste than Baker's Yeast. Food sources of Brewer's Yeast include: beer, cider, dried fruits, marmite, miso, tamari, vegemite, yeast extract, wine. Brewer's Yeast may also be added to cookies, oatmeal and yogurt to improve nutrition. Brewer's Yeast is high in chromium and B vitamins and may be used in supplements.

BAKER'S YEAST IS ELEVATED: Note that Baker's yeast and Brewer's yeast are different strains of one organism, *Saccharomyces cerevisiae*. Baker's yeast must multiply quickly and under high heat, and so the appropriate strain of *Saccharomyces cerevisiae* is selected for rapid growth and ability to tolerate high heat. Food sources of baker's yeast include: bagels, bread, buttermilk, cheese, MSG, Oxo cubes, pizza dough, pretzels, root beer, soy sauce, soup, sourdough.

SEVERAL BIRCH POLLEN PROFILIN CONTAINING FOODS ARE ELEVATED: Profilins are small proteins in the plant cell cytoplasm that play a significant role in sensitizing individuals to pollens. Profilins are responsible for Oral Allergy Syndrome, a condition that results in burning or tingling in the mouth when cross-reactive foods are consumed. Different pollens are associated with specific foods. Foods that contain BIRCH POLLEN PROFILIN include: almond, apple, carrot, celery, cherry, hazelnut, kiwi, peach, peanut, pear, plum, potato, and soy. A reaction to several of these foods may indicate general reactivity to BIRCH POLLEN PROFILIN rather than reactivity to specific food antigens or families. Refer to the RMA Food Sensitivities and Cross-Reactions document for more information on cross-reactions.

SEVERAL LIPID TRANSFER PROTEIN CONTAINING FOODS ARE ELEVATED: Lipid transfer proteins (LTPs) are heat and acid stable, and therefore retain potential allergenicity after cooking or upon ingestion. Foods that have documented cross-reactivity via LTPs include: apple, celery, corn/maize, grape, hazelnut, kiwi, legumes, lettuce, peach, peanut, rice, soy, sunflower, and walnut. Refer to the RMA FST Food Sensitivities and Cross-Reactions document for more information on cross-reactions.

SEVERAL SEED STORAGE PROTEIN-CONTAINING FOODS ARE ELEVATED: Seed storage proteins are heat and acid stable, and therefore retain their potential allergenicity after cooking or upon ingestion. The three categories of seed storage proteins are based on sedimentation rates: 2S, 7/8S and 11S. The 2S category includes: Brazil nut, buckwheat, canola, chickpea, mustard, peanut, pistachio, poppy seed, sesame seed, sunflower, and walnut. The 7/8S category includes: lentil, pea, peanut, soy and walnut, and the 11S category contains: cashew, chickpea, hazelnut, peanut, pistachio, and soy. Refer to the RMA FST Food Sensitivities and Cross-Reactions document for more information on cross-reactions.

ELEVATED REACTIONS TO FOODS: Interpretation comments are provided for certain foods. Comments appear when related foods give seemingly inconsistent results (e.g. casein normal and cow's milk high) and for reactive foods that are not commonly found in the North American diet. Refer to the RMA Food Reaction Guide for commentary on sources of individual foods or food categories.

Provider:
Belmont Natural Health Centre
Tom Daly ND

Client:
Emma Bucholtz
DOB: 12-Mar-1986



ORDER BY REACTIVITY Report

ELEVATED FOODS

159	Milk (Cow)	129	Yeast (Brewer's)	102	Yeast (Baker's)
83	Corn	79	Milk (Sheep)	74	Wheat
66	Pistachio	64	Milk (Goat)	57	Barley
56	Gladin	49	Blackberry	48	Soy Bean
45	Hazelnut	40	Cinnamon	39	Sunflower Seed
36	Raspberry	33	Celery	33	Plum
32	Cashew Nut	32	Orange		

BORDERLINE FOODS

95	Casein	72	Egg White	47	Pea
38	Bean (White Haricot)	37	Peanut	31	Bean (Red Kidney)
29	Cabbage (Savoy/White)	29	Potato		

NORMAL FOODS

23	Durum Wheat	22	Nutmeg	22	Rice
19	Sole	17	Broccoli	17	Wheat Bran
16	Cucumber	16	Hops	14	Almond
13	Cane Sugar	13	Cranberry	12	Lentil
11	Brazil Nut	11	Cauliflower	11	Cod
11	Mushroom	11	Onion	10	Bell Peppers
10	Black Currant	10	Crab	10	Egg Yolk
9	Cherry	9	Grapefruit	9	Lime
9	Nectarine	9	Spinach	8	Brussels Sprout
8	Lamb	8	Lobster	8	Mackerel
8	Oat	8	Parsley	8	Plaice
8	Trout	8	Turkey	7	Basil
7	Grape (Black/Red/White)	7	Mustard Seed	7	Venison
7	Walnut	6	Avocado	6	Bean (Green)
6	Carrot	6	Chicory	6	Pork
6	Red Chili Pepper	6	Rye	6	Scallop
6	Shrimp/Prawn	6	Tuna	5	Beet
5	Leek	5	Lettuce	5	Mussel
5	Sage	5	Salmon	4	Apricot
4	Banana	4	Beef	4	Beta-Lactoglobulin (whey)
4	Coffee	4	Cumin	4	Eggplant
4	Ginger	4	Haddock	4	Oyster
4	Pear	4	Peppercorn (Black/White)	4	Pineapple
3	Carob	3	Cocoa Bean	3	Dill

NORMAL FOODS

3	Duck	3	Herring	3	Lemon
3	Melon (Galia/Honeydew)	3	Mint	3	Strawberry
3	Tomato	2	Apple	2	Chicken
2	Coconut	2	Garlic	2	Veal
1	Buckwheat	1	Olive	1	Peach
1	Swordfish	1	Tea (Black)	0	Alpha-Lactalbumin (whey)
0	Asparagus	0	Canola	0	Clove
0	Coriander (Leaf)	0	Kiwi	0	Millet
0	Sesame Seed	0	Tea (Green)	0	Thyme
0	Turbot	0	Vanilla		