

**Breakthrough Diet Therapy for  
IBS, Migraines & Fibromyalgia using  
MRT testing and the  
LEAP DIET protocol**

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**Learning Objectives**

- Describe 3 or more types of adverse food reactions
- Understand how diet can play a role in the development of IBS, migraines & fibromyalgia
- Discuss Mediator Release Testing as an effective tool for dietitians to develop an oligoantigenic diet

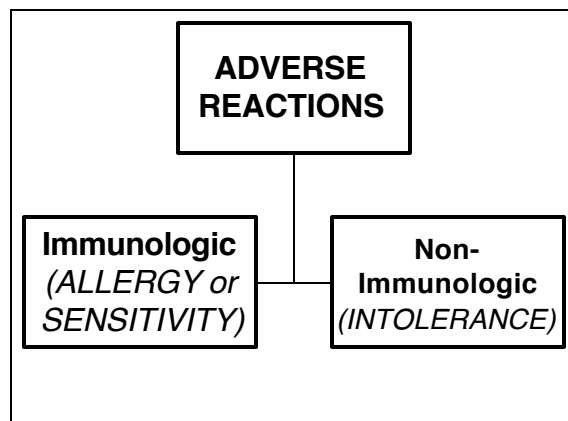
**Case Presentation - Diane**

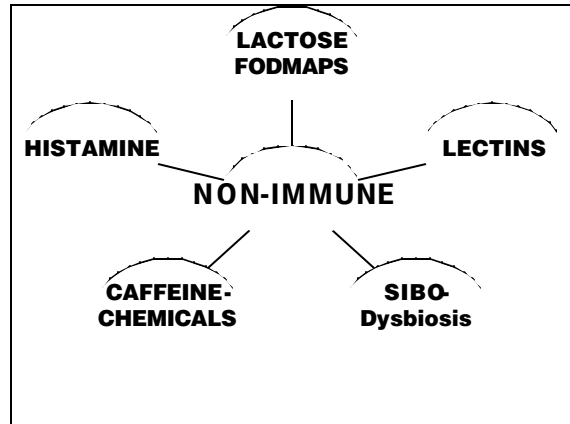
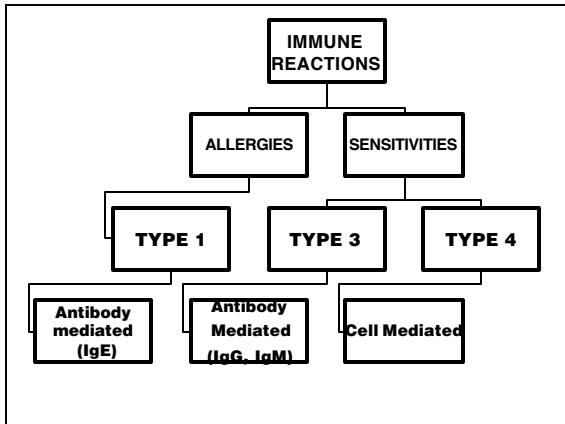
- 24 year old female diagnosed with D-IBS (diarrhea predominant) and migraine headaches. Also severe joint pain and sinusitis.
- Blood Pressure elevated: 122/86
- Symptom Survey scored 119 points

**GUT IMMUNOLOGY**

**Immune Food Allergy/Sensitivity**

- Ingestion - GALT reacts
- Recognition - Antigen as invader
- Defense – WBC, antibodies, immune components mount defense
- Warfare – Chemical Mediators released
- Proinflammatory and proalgesic mediators released





**Food Allergy – Type I**

- IgE
- Mast Cells
- Usually immediate
- Can result in anaphylaxis
- 2-4% of population
- Peanut, dairy, egg, fish, wheat, nuts, soy

**IgE - Testing**

IgE Allergy – Rast/Elisa Testing

- RAST- Radio Allergo Sorbent Test
- ELISA - Enzyme Linked Immuno Sorbent Assay
- Negative test does not mean “food is safe”
- About 60% accuracy.
- No chemicals tested

**IgE – Testing**

Skin Prick Testing (SPT/Scratch Test)

- Accurate for environmental allergies
- Not accurate for food allergies – SKIN vs Gut Immune System
- Positive result is only 30-50% predictive
- If intradermal, may increase sensitivity

**Food reactions do not correlate to IgE allergy in the diagnosis of food related GI symptoms**

Conclusions: Adult patients - food induced GI symptoms, DBPCFC, there were no indications of IgE mediated allergy to the relevant foods, suggesting other mechanisms in adults than in children.

Gut. 1996 Jul;39(1):130-5

### **Food Sensitivity – Type III**

- Non-IgE
- Immune Complex Mediated
- Delayed Response – 2-8 hours
- IgG may be protective
- IgG may be due to consumption
- No food Chemicals
- Testing: IgG ELISA – poor reliability

### **Food elimination based on IgG antibodies in IBS**

- 150 Patients
- Avoid IgG reactive foods vs. sham diet
- Outcome measures - SS scores.
- RESULTS: 12 weeks - 10% greater reduction in scores than the sham diet
- 26% in fully compliant patients

Gut. 2004 Oct;53(10):1459-64.

### **IgG Testing for Food Allergy Not Recommended**

- Many samples show +IgG without corresponding clinical symptoms
- Lack of Controlled Studies
- IgG indicates repeat exposure to food

Allergo J 2009; 4:267

### **Food Sensitivity – Type IV**

- Non-IgE/IgG immune response
- Involves different mechanisms, different cells, different mediators
- Much more common - 15-20%
- Testing: Alcat - older technology
- MRT-Substantial technological improvements

### **Type IV Hypersensitivity Reaction**

- Foods and food additives trigger non-allergic (non-IgE mediated) immune reaction causing mediator release by immunologic cells

Histamine, Serotonin  
Prostaglandins  
Leukotrienes  
Cytokines  
Dopamine



### **Physiologic effects of released pro-inflammatory and pro-algesic mediators**

- IBS: Inflammation, smooth muscle contraction, diarrhea, cramping, visceral hypersensitivity
- Migraine: vasoconstriction, vasodilatation, inflammation, WBC activation, pain receptor activation
- Others: muscle and joint aches and pain, fatigue, anxiety, depression, acne, insomnia, mood swings, food cravings, seizures, autism .

### **An overview on immune system and migraine**

- Authors state that although pathogenesis of migraine is still unclear . . .
- Cytokines considered pain mediators in neurovascular inflammation.
- Cytokines may be a cause of migraine pain
- High levels of chemokines could stimulate the activation of trigeminal nerves, the release of mediators, and then cause inflammation.

Eur Rev Med Pharmacol Sci. 2007 Jul-Aug;11(4):245-8

### **Cytokines play a role in fibromyalgia: a hypothesis and pilot study**

- 56 FM patients compared with controls
- Cytokines and cytokine-related molecules were measured
- Conclusion: Patients with FM had increased levels of IL-8 which promotes sympathetic pain and IL-6 which induces hyperalgesia, fatigue and depression, it is hypothesized that they may play a role in modulating FM symptoms.

Rheumatology 2001; 40: 743-749

### **Other Conditions That May Be Associated with Food Sensitivity**

- |                      |                           |
|----------------------|---------------------------|
| • Celiac disease     | • Rhinitis/Sinusitis      |
| • Ulcerative colitis | • Secretory otitis media  |
| • Crohn's disease    | • ADHD                    |
| • GERD               | • Urticaria               |
| • Asthma             | • Angio-edema             |
| • Migraines          | • Rheumatologic disorders |
| • Tinnitus           | • Atopy                   |
| • Depression         |                           |

### **Typical Diet Recommendations for IBS**

- Increase Dietary Fiber Intake
- Eat Small Frequent Meals
- Eat Low Fat Content Meals
- Drink Lots of Water
- Avoid Gas Forming Foods
- Avoid Spicy Foods
- *Avoid FOOD TRIGGERS*

### **Typical Diet Recommendations for Migraine**

- Limit Pressor Amines
- Limit dietary histamine
- Avoid dehydration-drink plenty of water
- Avoid hypoglycemia
- Eat lower fat meals
- Eliminate caffeine
- Avoid MSG
- *Avoid FOOD TRIGGERS*



### **Typical Recommendations for Fibromyalgia**

- Stress Management
- Eliminate white flour and sugar
- Exercise
- Get plenty of rest
- Eliminate/avoid caffeine
- Healthy Diet
- Vit/Min +herbals +others
- *Avoid Food Triggers*



## Challenges Historically Faced When Identifying Reactive Foods

Unlike allergies, food sensitivity reactions are:

- Dose dependent
- Delayed onset (up to 72 hours)
- Multiple foods can cause symptoms
- Single elimination trials are useless
- NO universal bad food - very patient specific

25

## Mediator Release Testing: Eliminating The Guesswork

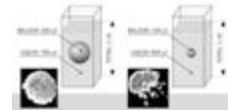
### Mediator Release Test (MRT)

- 120 foods and 30 chemicals are tested
- Each sample analyzed and compared to the patient's own control samples
- Checked for *any* mediator release from cells
- Cells should not react!



### Mediator Release Test (MRT)

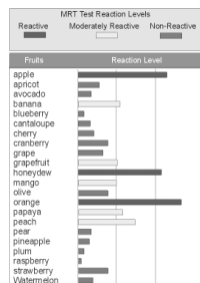
- Common end-point of ANY Cellular Reaction can be measured
- Degree of reactivity determined by mediator release from cells
- Degree of reactivity can be quantified



Pasula et al, Amer. Clin. Lab., May 99; 18(4): 16-18  
Pasula et al, Amer. Clin. Lab., Oct 99; 18(4): 14-15

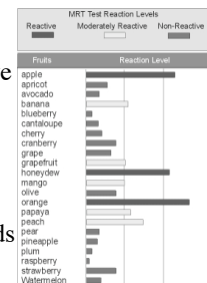
### LEAP Oligoantigenic Diet

- Patient specific
- Week 1: 20-25 least reactive of the Non-reactive foods
- Weeks 2-4: Slowly introduce new Non-reactive foods
- Test for oral tolerance



### LEAP Oligoantigenic Diet

- Patients avoid all Moderately Reactive and Reactive foods
- In time, they are advised to rotate all foods
- Add 'untested' foods and test for oral tolerance



## Symptom Survey

- Filled out by patient  
Prior to Testing  
7-10 days on diet  
4 weeks  
2-3 months
- Evaluate and document current symptoms
- Easy visual of patient progress

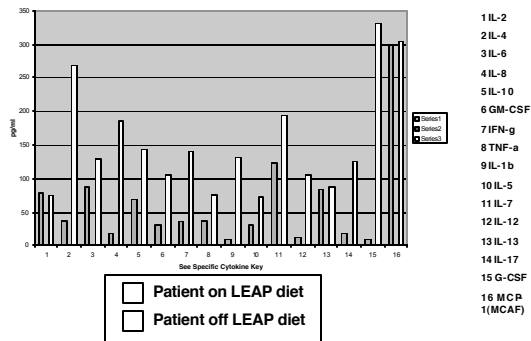
## Cytokine Profile in D-IBS

- 40 year old male with lifelong IBS
- On LEAP diet for > 1 yr and symptom free
- Baseline plasma cytokine profile obtained
- Patient then violated LEAP diet and consumed known reactive foods
- Typical GI and systemic symptoms quickly recurred
- Second plasma cytokine profile obtained

Fred H. Williams, M.D., 69<sup>th</sup> Annual Scientific Meeting and Postgraduate Course, American College of Gastroenterology, November, 2004.

## Cytokine Profile of Individual D-IBS Patient

IBS-D PATIENT PLASMA CYTOKINES DURING D-EPISEODE v BETWEEN EPISODES



## Cytokine Profile in D-IBS Patients Versus Normal Controls

### Normal Controls

- No reactivity
- Consistent with intact oral tolerance mechanism

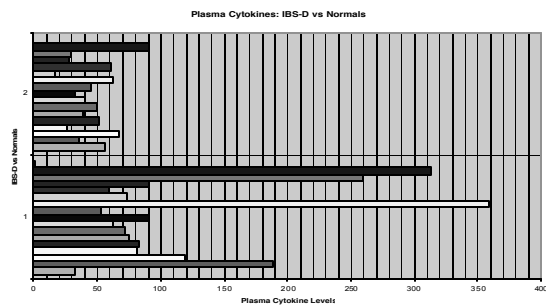
### D-IBS Patients

- Many reactive foods
- Consistent with loss of oral tolerance

Use of The LEAP Mediator Release Test To Identify Non-IgE Mediated Immunologic Food Reactions That Trigger Diarrhea Predominant IBS Symptoms Results in Marked Improvement of Symptoms; Fred H. Williams, M.D., 69<sup>th</sup> Annual Scientific Meeting and Postgraduate Course, American College of Gastroenterology, November, 2004.

## Human Plasma Cytokine Levels

Healthy Controls (upper bars) vs. IBS-D Subjects (lower bars)



## Certified LEAP Therapist Training

- 10-20 CPE hours for CLT
- 30-40 additional hours CPE via "SIL" Contract
- Mentoring by experienced CLT
- LEAP list-serve membership plus
- Training Materials Include:
  - 8-Narrated Power Point Modules on CD
  - Plus : Forms, templates, marketing tools, form letters, education materials and more



**Evidence Based Medicine  
Per JADA March 2005**

Evidence-based practice uses:

- The best available evidence
- The results of peer-reviewed studies
- And, when science is lacking, expert opinion and experience

Per former ADA Pres., Susan H Laramie

