Therapies...

Eliminating Allergies: An Alternative Viewpoint

An interview with
Arya Nielsen MS, LAc, FNAAOM

How do you view allergies in your patients?

Allergies were once defined by identifiable immune responses: immunoglobulin changes, histamine reactions, and recognizable symptoms of sneezing, rash, or headache. In a fixed reaction, symptoms are directly linked to an offending substance. But today, fixed allergies are seen as the exception, not the rule. Allergic reactions that are cumulative or variable, occurring only sometimes or in combination with other items, are thought to be common. Some sufferers “grow out” of their reactions. Others who have never known an allergy their entire lives find themselves suddenly or increasingly sensitive. The newer and broader concept of allergy has expanded to include any substance or even physical or emotional problem that challenges or weakens the system. This cumulative effect of offending substances, experiences, or emotions originating in our environments or in our diets is believed to be the terrain of chronic illness. It’s not what is outside of us that produces illness, but our reactions to our environment and the food we ingest.

How do we determine that an illness or symptom is an allergy or aversion to a substance?

Some people know or suspect aversion to certain items. Patients undergo skin testing or blood testing to identify immune-mediated reactions. Assessment of subjective somatic changes after sublingual administration of potentized antigen drops can also be included. A homeopathic process involving a series of diluting and shaking of an already diluted substance?

Bovine Colostrum

Allison Sarubin MS, RD

Colostrum is the pre-milk fluid secreted from the mammary glands during the first few days after birth. In addition to supplying both macro- and micronutrients to the newborn, colostrum is a source of several growth and immune factors, which contribute to the neonate’s development and immune defense. Because of its unique composition, bovine colostrum and its isolated components have been studied for its effects on health, specifically intestinal illnesses.1, 2

Colostrum Composition: Growth and Immune Factors

Both bovine and human colostrum contain a variety of peptide growth factors including insulin-like growth factors (IGF-1, IGF-2), insulin, transforming growth factor-α and -β (TGF), and epidermal growth factor (EGF). IGF-1 and 2 are heat and acid stable growth factors that are involved in cellular growth, development and differentiation in mammals. TGF-α and β have many functions, including wound repair and maintaining gut integrity. EGF may play a role in preventing bacterial translocation and stimulating gut growth in newborns. EGF is susceptible to proteolytic digestion unless ingested with food proteins.1, 2

Colostrum contains several antimicrobial compounds, including immunoglobulins, lactoferrin, lysozyme, and lactoperoxidase. Immunoglobulins are largely responsible for the antimicrobial activity of bovine colostrum. IgG1 is the most abundant type of immunoglobulin in colostrum, while IgG2, IgM, and IgA are found in much lower levels. At birth, calves have low serum levels of immunoglobulins since these antibodies are not passed through the placenta. Immunoglobulins from colostrum play

continued on page 48
“Who Moved My Cheese?”
Cheryl R. Galligos, MA, RD

No, this message is not about cheese/milk allergy or lactose intolerance even though the theme of this newsletter edition is allergies and intolerances. “Who Moved My Cheese” is a very simple story (parable-like) that reveals profound truths about change that give people and organizations a quick and easy way to succeed in changing times. It is the story of four characters that live in a “Maze” and look for “Cheese” to nourish them and make them happy. The “Cheese” is a metaphor for what you want to have in life and the “Maze” is where you look for what you want—the organization, your profession, your family, etc. The story tells how the four characters are faced with unexpected change and how each of them deals with the change. This book is a #1 best seller and is widely read in corporate America.

As dietary professionals interested and/or working in complementary nutrition, we struggle through a “maze” of science-based research, conflict of interest, ethics, herbal medicine, functional nutrition, conventional versus unconventional medicine, evidence-based medicine, etc. and the information/education to be provided to the client/consumer. Our “Cheese” is how we would like NCC and the dietetics professional to be perceived and accepted by others—we want to be recognized as the “authority” on complementary nutrition and related therapies.

The NCC Executive Committee supports this vision and continuously navigates the “maze” for NCC members. You can support NCC with resources by renewing your membership with your ADA dues statement. Your support through time and involvement is always welcome.

Also, I would encourage you to read “Who Moved My Cheese.” It will help you, NCC and ADA not only survive the future but also stay competitive. Finally, be sure to check out the NCC Website www.complementarynutrition.org to find member benefits and news. If you are not a part of the electronic mail list, be sure to consider “getting on line.” It’s a great place to get your questions about complementary nutrition practice and products answered. Contact GisanRD@aol.com.
Lactic Acid Bacteria for Health

Brenda Lynn Petesch, MS

Introduction
More than 400 species of bacteria live in the intestinal tract, representing about two pounds of body weight.¹² Of these, at least four genera constitute the lactic acid or “friendly” bacteria: Lactobacillus, Leuconostoc, Pediococcus, and Streptococcus.³ The Lactobacillus genera are of dietary interest since they have been shown to inhibit the growth of pathogenic microorganisms in food and the intestinal tract.⁴–⁶ They digest fiber and produce vitamins,⁵–⁷ and may reduce side effects caused by antibiotic usage, including diarrhea and secondary yeast infections (Candida albicans).⁸–¹¹ Since Candida albicans contributes to conditions such as allergies, vaginitis and oral thrush, reducing its growth in the intestinal tract may be health promoting.¹² Excessive antibiotic use has been shown to destroy friendly lactobacilli bacteria in the intestinal tract of some patients.¹³

Effect on Production of Toxic Substances in the Gut
Activity of fecal microflora is influenced by diet and can be altered/improved by Lactobacillus acidophilus (L. acidophilus) supplements.¹⁴ Bacterial enzymes are known to catalyze reactions that may result in the formation of carcinogens produced nearby or within the intestinal tract.¹⁵ Compared to vegetarians, omnivores eating a Western diet have higher levels of potentially injurious enzymes such as nitroreductase, and azoreductase in their fecal microflora.¹⁵ L. acidophilus and Bifidobacterium (B. bifidum) have been shown to suppress the production of harmful substances including ammonia, indole, phenols and hydrogen sulfide, which are carcinogenic and damage the liver.¹⁶,¹⁷ Together, B. bifidum and L. acidophilus have been shown to suppress the production of these and the decomposition products of the top six human source putrefying bacteria, Bacteroides uniformis, Acidaminococcus fermentans, Clostridium clostidiforme, Escherichia coli, Proteus vulgaris, and Citrobacter freundii.¹⁷ B. bifidum “recycle” toxins such as ammonia by using them as an important source of nitrogen for protein synthesis during their growth phase.²,¹⁷ B. bifidum and lactobacilli species have also been shown to decompose and suppress nitrosamine production in the intestines.¹⁵ Lactic acid bacteria appear to inhibit the growth of pathogenic bacteria by acidifying or reducing the pH of the intestines⁴,⁵,¹⁷ by adhering to the intestinal mucosa⁵,¹⁸ and by activating macrophages (immune cells), which also produce substances that suppress harmful bacteria.⁴,⁵,¹⁹

Effect on Resistance to Intestinal Pathogens
Lactic acid bacteria have been shown to increase intestinal resistance to pathogens. Viable and heat-killed L. acidophilus improved clearance capacity of E. coli when compared with germfree controls.²⁰ B. bifidum and L. acidophilus prevented the decay of villi exposed to E. coli.¹⁶ Recent work has shown that B. bifidum and L. acidophilus, consumed in a fermented milk product, can aid the humoral immune response. A four-fold increase in IgA titre against Salmonella Ty21a was seen when human subjects consumed bacteria prior to infection with this organism.²¹ Secretory IgA is the major immunoglobulin in human exocrine secretions synthesized by local plasma cells. It complexes with polypeptides on the surface of secretory cells, such as those that line the gut, and protects the mucosal membrane by coating pathogens and impeding their attachment to mucosa.²²

Factors Affecting Intestinal Flora
Various factors disrupt the intestinal flora including antibiotics, travel, stress (physical and psychological), medications, weather, pathogens, change of diet, and aging.¹,²,²³ Probiotics are organisms or substances that help to improve the balance of microorganisms in the intestinal tract by introducing strains of friendly bacteria. Probiotics help to restore balanced numbers of known beneficial bacteria thus creating a healthier environment in the intestinal tract.

Clinical Studies Using Probiotics
Probiotics may help alleviate/prevent antibiotic associated diarrhea. A pilot clinical study of 180 patients demonstrated >90% improvement in patients with soft stools and abdominal distention/bloating, improved frequency of defecations in constipated patients and > 80% reduction in odor and stool hardness following intake of a probiotic containing L. acidophilus and B. bifidum. B. bifidum alone was shown to reduce colonic constipation in 12 of 18 subjects.⁴ In one placebo-controlled clinical study of patients taking neomycin for E. coli infections, only 4/20 patients taking dried Lactobacillus acidophilus orally developed diarrhea whereas 8/19 taking the placebo developed diarrhea.²⁴ In a double-blind, placebo controlled study utilizing yogurt cultured with Bifidobacteria longum, the yogurt reduced the frequency of abdominal complaints from erythromycin while reducing colistidial spore counts as well.²⁵ Various doses of a dried L. acidophilus powder improved 57 of 59 cases of diarrhea and cases with constipation, abnormal fermentation, and food poisoning.²⁶ A combination of L. acidophilus and B. bifidum prevented antibiotic-induced dyspepsia in 22 children.²⁷ A double blind study of patients taking a mixed powder of Lactobacillus acidophilus and Lactobacillus bulgaricus four times daily found that antibiotic-associated diarrhea was significantly greater (p<0.03) in patients taking the placebo.²⁸ Oral intake of L. acidophilus and Bifidobacteria longum produced favorable results in 12 patients treated for Salmonella infections.²⁹ Lactobacillus reduced travelers’ diarrhea in a large Finnish study (756 subjects). In the placebo group, 46.5% experienced diarrhea whereas only 41% experienced diarrhea in the bacteria group.³⁰ In infants with E. coli who were given yogurt-containing Lactobacillus acidophilus with the antibiotic terramycin, 19 of 20 infants were cured within 3 weeks. Yogurt treated infants improved quicker than non-treated and no relapses occurred within six months post treatment.³¹ Human strain Lactobacillus in yogurt significantly reduced erythromycin associated diarrhea, stomach pain, abdominal distress, and flatulence in a placebo-controlled...
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Herbs . . .

Herbals as Allergens?
Laura Frank, PhD, RD

Introduction
The use of botanicals for a myriad of treatments and conditions is becoming increasingly popular. Although botanical medicine may be of benefit for some individuals, others may respond negatively to their ingestion. Aspirin-like constituents called salicylic acid esters (salicylates) are found in high doses in many herbs and spices. Salicylates may have adverse physiologic and psychological effects in individuals who are salicylate-sensitive. Salicylates are found in many foods; the scope of this article, however, is limited to the salicylates found in herbs and other botanicals. Information about food salicylates may be found in references 2, 7, and 10.

Food Allergy vs. Food Intolerance
Food allergies are defined as an immune-mediated response to the ingestion of foodstuffs. When and if immune-stimulated mediators such as immunoglobins G (IgG), E (IgE), M (IgM), and A (IgA) respond to a foreign substance, then that substance is termed an allergen. Immediate allergic reactions may be immediate (3 hours) or delayed (72 hours). Immediate allergic responses referred to as Type I immunological reactions, frequently involve IgE. Symptoms include rashes, hives and headaches. Delayed hypersensitivity responses, on the other hand, are usually referred to as Type IV immunological reactions and typically involve IgG, IgA, or IgM, and include symptoms like arthritis, hives, and/or eczema. Food intolerance (food hypersensitivity) is a generic term describing an abnormal physiological response to an ingested food or food additive that is not proved to be immunogenic. Although intolerance to an ingested food or food additive may not result in anaphylaxis, complaints of “dis-ease” are common. Example: Individuals sensitive to aspirin, who ingest food and food additives (including herbs and spices) that contain salicylates may experience a food intolerance reaction.4–7

Salicylates in Botanicals
Salicylic acid is a phenolic compound derived from the parent compound chromismate. Acetylsalicylic acid (aspirin) was originally derived from the botanical willow bark (Salix spp.) with its active constituent, salicin. Through hydrolysis and oxidation, salicin is converted to salicylic acid and aspirin is derived through subsequent acetylation. In addition to salicin, other salicyl alcohol-phenolic glycosides are found in willow, such as fragilin and tremulacin. All of these phenolic glycosides can be converted to salicylic acid within the gastrointestinal tract and liver.

The amount of salicylates in botanicals has been reported, though data are contradictory and inconsistent. Contradictions exist because the salicylate content of botanicals depends upon the origin, processing, and storage, as well as the analytical methodology used when testing. In addition, salicylic acid and other salicylates such as methyl esters and glucosides have been isolated from many plants. Like other phenolic glycosides, methyl salicylate (and other methyl esters) can be hydrolyzed in vivo to the parent compound salicylic acid.

Botanically, the most significant amount of salicylates or its derivatives, such as methyl salicylate, are white willow bark (Salix alba), birch bark (Betula lenta L.), wintergreen (Gaultheria procumbens L. or fragrantissima) and Queen-of-the-meadow (Filipendula ulmaria L.). Other plant sources of salicylates include acacia, aspens, calcanthus, camellia, hyacinth, marigold, milkwort, poplars, spirea, teaberry, tulips and violets. Culinary herbs known to possess high amounts of salicylates are shown in Table 1. The highest amount of salicylate content has been shown in dried curry powder, which contains 218 mg salicylate per 100 gm.2,10

Side Effects of Salicylates
Aspirin (acetylsalicylic acid) has caused many adverse effects in individuals.7 These adverse effects may be immune-mediated or non-immune-mediated and are listed in Table 2.7,10

In addition to the systems affected and

| TABLE 1: Herbs with relatively high salicylates content per 1 teaspoon dosage |
|---------------------------------|-----------------|----------------|----------------|
| Herb                            | Scientific name | Salicylates mg/100 g | Weight mg | Salicylates mg/serving |
| Curry (dry powder)              | N/A             | 218              | 2 g       | 4.36                   |
| Paprika (Cayenne) (dry powder)  | Capsicum frutescens L. | 208         | 2 g       | 4.06                   |
| Dill (dry powder)               | Anethum graveolens L. | 94.4          | 2 g       | 1.89                   |
| Thyme (dry leaves)              | Thymus vulgaris L. | 183           | 1 g       | 1.83                   |
| Turmeric (dry powder)           | Curcuma domestica or longa L. | 76.4       | 2 g       | 1.53                   |
| Rosemary (dry powder)           | Rosmarinus officinalis L. | 68           | 2 g       | 1.36                   |
| Oregano (dry powder)            | Origanum vulgare L. | 66.8          | 2 g       | 1.34                   |
| Mixed herbs (dry leaves)        | N/A             | 55.6            | 2 g       | 1.11                   |
side effects from salicylates listed in Table 2, other symptoms may present themselves. If the patient’s gastrointestinal system has been affected, then the patient may exhibit weight loss, electrolyte imbalance and/or anemia. Dermatologically, patients may complain of urticaria and may have swelling of the skin, mucous membranes or viscera. If hematological systems have been affected, the patient may report easy bruising (ecchymoses) and purpura.17

Likelihood of Food Salicylates Causing Food Allergies or Food Intolerances
Salicylates (but not acetylsalicylic acid) occur naturally in many foods and botanicals. Researchers have not proven that naturally occurring salicylates cause adverse reactions, even in individuals sensitive to acetylsalicylic acid. Many investigators argue that it is doubtful that salicylate content of food can cause symptoms similar to that found from a drug.2,10,14 Furthermore, because salicylates used as topical agents such as liniments, gels, lotions, or ointments derived from wintergreen or sweet birch oils may cause adverse health effects related to salicylate sensitivity. “Whether natural or synthetic, it is often responsible for intoxications with the same symptoms as salicylate intoxication: 1 mL of methyl salicylate is equivalent to 1.4 g of acetylsalicylic acid, and the quantities ingested are sometimes greater than 10 mL.”6

Despite claims that food salicylates are not implicated in the cause of symptoms related to acetylsalicylic acid, other researchers have reported improvement in symptoms such as asthma and urticaria following an elimination diet.7 Furthermore, Feingold5 reported that salicylate-sensitivity was implicated in attention deficit/hyperactivity disorder in children and that a salicylate-free diet improved symptoms. Moreover, in clinical practice, it has been shown that individuals with reported salicylate-sensitivity experienced improvements in dark circles under the eyes, tinnitus, and “brain fog” or “spaciness” after eliminating food salicylates, including herbs.17

Moreover, because salicylates are found in many over-the-counter and prescription medications (for a list, see Perry7), a salicylate reaction may occur due to a combination of food, food additives, botanicals, and drugs. It is estimated that approximately 15% of aspirinand sensitive individuals experience asthma and urticaria after ingesting other phenolic compounds such as benzoates (Setipane) and sulfites.2

Therefore, it is possible that herbs possessing a benzoic acid composition such as Peruvian Balsam (Myroxylon balsamum L.), Tolu Balsam (Myroxylon balsamum L.), and Siam benzoin (balsamic resin obtained from the trunk of Styrax tonkinensis) can cause adverse health consequences in salicylate-sensitive individuals. Finally, sources of methyl salicylates used as topical agents such as liniments, gels, lotions, or ointments may cause adverse health effects related to salicylate sensitivity. “Whether natural or synthetic, it is often responsible for intoxications with the same symptoms as salicylate intoxication: 1 mL of methyl salicylate is equivalent to 1.4 g of acetylsalicylic acid, and the quantities ingested are sometimes greater than 10 mL.”6

Salicylate Metabolism and Mechanism of Action
Salicylic acid, either as salicin (active constituent of willow bark) or acetylsalicylic acid (aspirin), is used as an anti-inflammatory and anti-thrombogenic agent. Mechanistically, salicylates irreversibly inhibit the enzyme cyclooxygenase within the arachidonic acid pathway, which is responsible for biosynthesis of pro-inflammatory eicosanoids including specific pro-inflammatory prostaglandins and leukotrienes.18 Therapeutically, salicylic acid products, commonly referred to as non-steroidal anti-inflammatory drugs (NSAIDS) are used to reduce inflammation, improve joint mobility, and to provide an analgesic effect.8 Historically, Queen-of-the-meadow (Filipendula ulmaria L.) and willow (Salix alba L., S. purpurea L., S. fragilis L.) have been used traditionally for fever, flu-like symptoms, as a diuretic, as an anti-inflammatory, and as an anodyne for headache, toothache, and muscle aches.6,8

Testing for Salicylate Sensitivity
The dietetics professional should become informed about foods, herbs and

<table>
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<th>TABLE 2: Side effects of aspirin (acetylsalicylic acid)</th>
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<td>System affected</td>
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spices that contain salicylates or related compounds and understand the symptoms of salicylate sensitivity. A thorough interview with the patient is necessary so diagnosis and an appropriate, comprehensive, achievable treatment plan for the patient can be developed.

Testing for food allergies and food intolerances is difficult due to laboratory limitations and lack of reliability in testing procedures. Various skin tests are available (e.g. scratch, prick, intradermal) for the assessment of IgE-mediated food allergy responses with questionable reliability. Skin tests have been reported to be a better negative predictor of food allergies than positive predictor. Presently, the measurement tool considered to be the “gold standard” of food allergy tests is the double-blind, placebo-controlled food challenge, which is considered the ideal method for confirming history of adverse reactions to foods.

Testing for food intolerances and food sensitivity requires a detailed food record, a cooperative patient and a knowledgeable dietetics professional. After a careful screening of the patient’s food intake, clinical signs and symptoms of food intolerance need to be assessed. The patient may self-report physical and psychological responses to ingested salicylate-containing food products, but the clinician must also monitor the patient carefully during the interview process.

Therapy for Salicylate Sensitivity

The therapeutic treatment of food allergy or food intolerance is to modify the patient’s dietary intake. This goal can be achieved by having the patient follow an oligoantigenic diet including lamb, rice, potato, banana, vegetables from the brassica family, and whole grains including rice, millet, amaranth, and quinoa. A rotation diet, an elimination diet, or a substitution diet may also be used. Dietary treatment of asthma, urticaria and hyperactivity by the elimination of salicylates has been reviewed and salicylate elimination diet guidelines are available.

After the patient has followed an elimination diet, a challenge diet may be used in order to “test” the suspected food product. Some individuals are salicylate-sensitive in a dose-dependent manner, whereby being exposed to a small amount of salicylates or related compounds may not produce adverse effects but large amounts of salicylates elicit adverse health symptoms. Therefore, determining a tolerance “threshold” for salicylate exposure may be beneficial so that individuals may be able to utilize botanicals without adverse effects.

Conclusion

Many botanicals containing salicylates or related compounds can cause adverse health effects. More clinical trials are necessary in order to determine the likelihood and degree to which salicylates contained in foods and herbs contribute to salicylate sensitivity. It is the dietary professional’s responsibility to become aware of salicylate-containing herbs and spices, the side effects associated with salicylate sensitivity, and the proper therapeutic approach for the patient. Although a small and specific population may experience adverse health effects of botanicals due to their salicylate content, it may be prudent to recommend botanicals over medications (e.g. NSAIDs) for the treatment of inflammation or pain.

Laura Frank, PhD, RD works with Dr. Alexander Schauss at the American Institute for Biosocial and Medical Research (AIBMR). Dr. Frank is a former faculty member and nutrition consultant for Bastyr University. Contact her at LFrank@aibmr.com.

References

ed antigen sample produces potentized antigens. Certain treatment protocols are considered diagnostic corroboration of allergies. If a strict avoidance or rotation diet relieves symptoms, then the presumption of sensitization is confirmed.

**How do you view current treatment options?**

Current treatment has involved a life commitment to diet regimens, alone or in combination with lengthy series of injections, taking sublingual potencies, vitamin fortification, and so on. Alternative treatment approaches such as acupuncture, herbs and neti (nose) washes help allergy prone patients forgo pharmacological dependence. The limits of this circular conversation of allergy diagnosis and management has been broken open by new forms of allergy testing and treatment that claim to eliminate the allergic response altogether.

**Can you describe this new form of allergy testing and treatment?**

Distinct fields of health care arrived at “allergy elimination” in converging ways. As East Asian meridian/channel medicine indigenized to the West over the last 50 years, new (to the West) ways of looking at the body met up with the instruments of modern technology. Not only could microelectric potency and resistance of channels and acupuncture points be measured, as discovered by Reinholdt Voll in the early 1950s (EAV is an acronym for electro acupuncture according to Voll), but the measures themselves became predictors of tissue functionality. And when an offending substance is introduced into a person’s field, their channel conductivity is altered. Mere proximity of a substance or a glass jar with the substance itself is held in the hand, or thought image is held in the mind. When the patient “adapts,” the allergic or aversion response transforms. In theory, a neuropeptide mechanism is most likely responsible for the communication of implicit memory and its automaticity and for the ability to adapt through associative somatic intervention.

**Describe the allergy elimination procedure you use.**

Once an aversion or allergen is identified and confirmed through muscle testing, clearing it involves a simple manual procedure that is applied while the patient holds either a glass vial with the energetic signature of an offending substance or a glass jar with the substance itself. An energetic signed vial contains half alcohol/half water and has been electromagnetically impressed with the “signature” of an item or mix of items. Even a slip of paper with the name of the substance will do if samples are unavailable. Depending on the protocol used, the manual procedure usually involves strong stimulation of the meridian point on the back. After manipulation, the muscle test is repeated. If the indicator muscle is now strong, and remains strong when each of the organ alarm points is tested, the substance has been temporarily cleared.

Step 2 involves needle stimulation of certain acupuncture points to secure the clearing. The needles are left in place for 15 minutes. The person being treated continues to hold the vial throughout this process. When step 2 is completed, the needles are removed, the patient gives back the vial, washes their hands with cool water, and is instructed to avoid touching or ingesting the substance just treated for 25 hours, one entire meridian cycle plus an hour. Care must be taken that the substance is avoided in its direct but also indirect forms. Coming into contact with the substance may defeat the

Therapies ... (cont.)

Nutrition in Complementary Care

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clearing and produce a reaction. Some protocols now drop this last step. European protocols require the patient to keep a dilution of the substance within their field for a few days, or prescribe oral homeopathic potencies of the allergen.

The substance is tested again at the next office visit to determine if the patient’s reaction to it “cleared.” The same item may be tested in combinations or the process may move on to another item. Nutritional therapy may need adjustment once the allergic reactions are resolved and nutrient absorption has improved.

How would you characterize your experiences working with allergy patients?
I have used allergy elimination for 12 of my 25 years of East Asian medicine practice with some surprising results. Allergies are as frustrating for the practitioner as for the patient. Counteractive measures heal reactive inflammation, but exposure to allergic substances will re-stimulate the symptoms. Over time, providers and patients weary of the ups and downs, and both surely would welcome therapy that promises lasting resolution. The aversion therapies described above promise such a resolution, but in practice, both provider and patient need to believe that such a change is possible.

Allergy elimination is a proactive therapy. It’s fun to use in practice. However, knowing how and when to use it augments positive outcome.

What about allergies to animals?
If a patient presents with an acute allergic reaction to cats, clearing cat dander may eliminate the reaction within the hour. But treating cat dander may have little effect on a chronically symptomatic cat allergic patient. This person may need to have certain food and vitamin allergies cleared first. In other words, allergies to airborne substances are rooted in food allergies, and often the latter must be transformed before the former can be cleared.

Can allergies be eliminated?
Yes. We know it is possible because we see it occur naturally when people simply “outgrow” their allergies. I believe these therapies build on something the body already knows how to do. There can be a tendency among enthusiastic practitioners to overemphasize allergy elimination techniques. The techniques themselves appear simple, but the expertise of knowing how and when to use them clinically is not simple at all. The clinical encounter in a hands-on practice remains a cognitive and somatic improvisation. Keep in mind that allergy treatment is not a substitute for acupuncture, herbal and nutritional treatment that restores balance to a chronically inflamed system.

Allergy elimination is a wonderful addition to this dance of healing.

References:

Arya Nielsen is a professor of Oriental Medicine, nationally board certified in acupuncture and Chinese herbal medicine, Fellow of the National Academy of Acupuncture and Oriental Medicine and author of Gua Sha, A Traditional Technique for Modern Practice, Churchill Livingstone, 1995 Currently Arya works at Beth Israel Hospital’s Continuum Center for Health and Healing in New York City. Contact Arya at anielsen@bethisraelny.org or www.guasha.com.

Supplements . . . (cont.)

an important role in protecting newborn calves from infectious enteric and respiratory diseases. Calves with higher serum concentrations of immunoglobulins have a lower mortality rate than calves with low serum levels.1

Lactoferrin, an iron-binding glycoprotein, is another antimicrobial compound found in colostrum. It has been shown to inhibit the growth of a number of microbes and has also demonstrated antiviral activity in vitro against herpes simplex virus type-1, human immunodeficiency virus, and human cytomegalovirus. Lactoferrin may also play a role in intestinal iron absorption and neonatal gut growth. Lysozyme and lactoperoxidase are antibacterial enzymes found in colostrum that are toxic to gram positive and gram-negative bacteria.1, 2

Bovine Colostrum vs. Hyperimmune Bovine Colostrum
Researchers have discovered that hyperimmunizing cows with repeated injections of vaccines increases the immunoglobulin content of the milk.1 The resulting product, “hyperimmune colostrum,” contains high amounts of specific antibodies against the microbes in the vaccines. While there are a number of studies that have examined hyperimmune colostrum and/or its individual antibodies, it is important to note that this product differs from commercially available colostrum and it is not sold as a dietary supplement in the United States.

Dosage and Bioavailability
Colostrum sold in supplements is typically collected during the first 72 hours after a cow gives birth. Supplements may either be pasteurized at minimum heat after filtration and homogenization or sterilized through microfiltration and then vacuum packaged.3 Ideally, colostrum products should be taken from a pool of pasture-fed cows to insure a wide spectrum of antibodies and growth factors. Colostrum is available in capsules, chewable tablets, powders, liquid, energy bars and protein powders, and in topical skin creams and lotions. Manufacturers suggest taking 2,000 to 5,000 mg of colostrum (about 8–10 capsules) daily. Some promotional literature purports...
that colostrum supplements have a wide variety of benefits, including improvements in the immune system, intestinal flora, depression, and aging.4

Some researchers have suggested that the biochemical makeup of colostrum provides inherent protection against proteolytic digestion in the gut, whereas isolated growth factors may be digested when administered orally.2 Furthermore, it appears that infants and children have greater gut permeability, and therefore, absorb the immune and growth factors in colostrum better than adults.1

Research: Colostrum and Intestinal Disorders

A recent review article in the American Journal of Clinical Nutrition suggested that colostrum and/or its individual fractions might be useful for treating a number of gastrointestinal disorders such as short-bowel syndrome, NSAID injury, chemotherapy-induced mucositis, inflammatory bowel diseases, and infective diarrhea.2 Supportive data from in vitro, animal and clinical trials were reported. However, most research conducted to date has used colostrum from hyperimmunized cows, which is not commercially available. Therefore, it cannot be assumed that colostrum from non-immunized cows would have the same effect. One small study tested the effects of bovine colostrum (from non-immunized cows) in children with E. coli associated diarrhea. In this double-blinded, placebo-controlled study, 27 patients (aged 1 month to 18 y) were randomized to receive 7000 mg bovine colostrum or placebo daily for two weeks. Stool frequency and fecal excretion of the infecting strains were assessed. At the end of therapy, subjects treated with colostrum had significantly reduced stool frequency compared to controls. However, colostrum had no effect on the carriage of pathogens in feces.5 Other controlled clinical trials using colostrum from hyperimmunized cows have reported improvements in diarrhea infection in children infected with rotavirus6,7 and in healthy adults challenged with Cryptosporidium parvum infection.8

Research: Colostrum and AIDS-Related Diarrhea

There is some evidence from small, uncontrolled trials that hyperimmune and/or nonimmune colostrum may benefit patients with AIDS infected with the parasite Cryptosporidium parvum. In one in vitro study, hyperimmune colostrum inhibited C. parvum infection in human intestinal cells, while nonimmune colostrum did not.9 In an open study of 24 AIDS patients, 21 days of hyperimmune colostrum treatment reduced stool weight (from 1.158 to 595 g/day at study end) and stool frequency (from 6.6 to 5.4 bowel movements/day at study end).10 In a double-blind, comparative pilot study, five AIDS patients with diarrhea due to C. parvum were randomized to receive either hyperimmune colostrum or non-immune colostrum by continuous nasogastric infusion for 10 days.11 One of three patients treated with hyperimmune colostrum had a reduction in diarrhea and in the stool concentration of C. parvum oocysts. Two patients receiving nonimmune colostrum had decreases in diarrhea volume, but no change in oocysts excreted. There are also case reports of clinical improvement with hyperimmune colostrum in two patients with AIDS and diarrhea secondary to C. parvum.12,13 Clearly, there is a need for larger, well-controlled trials using colostrum in this population.

Safety

No serious adverse effects have been reported with hyperimmune or nonimmune colostrum products. To ensure safety, products need to be properly processed by pasteurization or microfiltration. Colostrum suppliers need to certify that products are free of bovine spongiform encephalopathy (mad cow disease) and other bovine diseases. Products should be tested for the presence of heavy metals, pesticides, herbicides, and pathogens, and biological activity. Colostrum could cause mild gastrointestinal discomfort in the lactose intolerant patient, and individuals with a true cow’s milk allergy should avoid colostrum.

Relevance to Dietetic Professionals

There is a theoretical basis that bovine colostrum may be helpful in intestinal illnesses, particularly infectious diarrhea. However, most of the research to date has been conducted in small trials, using colostrum from hyperimmunized cows, not commercially available colostrum supplements. Although promising, the benefits of colostrum supplements from non-immunized cows remain to be clarified in large-scale, controlled human studies.

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Allison Sarubin MS, RD is in private practice in San Francisco. She is the author of The Health Professional’s Guide to Popular Dietary Supplements published by ADA. Contact Allison at www.YourSupplementGuide.com, 415/474-4750 or via email: Sarubin @pacbell.net.
Genes and Food Intolerance: Nutrition Matters
Ruth M. DeBusk, PhD, RD

Gluten-sensitive enteropathy (GSE) is a good model for food intolerance and the genetic-nutrition connection. Food intolerance is a mismatch between genes and diet. The genetic effect is quiescent until the wrong food appears. The dietetics professional’s ability to help people match their food choices to their genes is of primary importance.

Food intolerance involves an immune response that leads to pathological changes in the gut, and GSE is a model for this process.1–4 When individuals with GSE eat gluten, a component of wheat, barley and rye, they develop chronic inflammation of the small intestine that progresses to microvillus erosion, crypt hyperplasia and increased intestinal permeability, decreased nutrient and increased toxin absorption, severe malnutrition, and systemic inflammatory disorders. GSE is genetically determined but its expression, whether or not one actually has a physiological problem, is nutritionally determined.

Background on GSEs
GSE consists of at least two gluten-sensitive disorders: celiac disease and dermatitis herpetiformis (DH), where blisters develop on the skin when gluten foods are eaten.5 Significantly more is known about celiac disease than DH.

Pathogenesis. The details of how gluten triggers an immune response and inflammation are emerging.6–8 The damage to the intestinal epithelium is highly variable and ranges from mucosa with normal architecture but increased intraepithelial lymphocyte infiltration to the classical flat mucosa of full-blown celiac disease. Intestinal permeability increases as the disease progresses.9

Detection. Tests based on tissue transglutaminase (TGA), an enzyme released during the immune response and specific to celiac disease, are replacing intestinal villous biopsy.10–13

Inheritance. Both disorders are inherited as autosomal recessives, which means the genes are not on the X or Y chromosomes and that an individual must have one mutated gene on each chromosome for full expression. Two genes within the major histocompatibility complex have been identified but at least four others are suspected.14

Prevalence. In the U.S., 1 in 200–300 people of European descent have celiac disease.15 The number of carriers (one normal and one mutant gene) can be expected to be even more common. An important emerging concept here is that of “gene dosing” in which the extent of physiological function is related to the number of genes coding for the normal gene product. Carriers, long thought to be “normal” and not subject to disease, may well have impaired function that leads to subclinical disease.

The Valuable Role of the Dietetics Professional
GSEs are frequently under diagnosed and misdiagnosed.16 Untreated GSE predisposes to malignancy and to other autoimmune disorders such as type 1 diabetes and inflammatory bowel disorders.17 Health care professionals have been taught that celiac disease is a rare genetic disorder that manifests as overt malabsorption, anemia, and weight loss. Actually, GSE is quite common and individuals with GSE are far more likely to present with mild abdominal discomfort, lactose intolerance, infertility, osteopenic bone disease, osteoporosis, short stature, dental anomalies, skin eruptions, chronic tiredness or, in children, alopecia.18–22

A strict lifelong gluten-free diet is needed to prevent the manifestation of the disease. Gluten foods, however, are a mainstay of the Western diet. Gluten-containing grains are the foundation of the Food Guide Pyramid and of the widely promoted low-fat, high carbohydrate dietary guidelines. Individuals who are unaware of their genetic makeup are likely to eat significant amounts of grain-based foods. The dietetics professional, by knowing the disorder is common and that the carrier state is even more common, is in a position to suspect GSE and to alert the physician to the need for diagnostic testing for such clients and their families.

Below are guidelines for working with clients who present with diverse GI complaints.

• Consider GSE, which can manifest from infancy to old age. Check for overt signs; take a detailed family history and look for autoimmune disorders.
• Request diagnostic testing and test before eliminating gluten from the diet. If testing is not an option, begin an elimination diet for three weeks (eliminate gluten- and yeast-containing foods, dairy, eggs) and keep a food and symptom diary.
• Work with the physician to alert family members of their risk of developing GSE and to implement a preventive strategy.

General Applications to Food Intolerance
GSE is just one example of the more general phenomenon of food intolerance and its genetic and nutrition aspects. There are several important points to consider:

• Food intolerances are essentially a mismatch between genes and diet. The resulting immune response by the gut-associated lymphoid tissue (GALT) leads to chronic, localized inflammation that, if left unchecked, can have profound effects on the gut’s absorptive processes. It can also disrupt the gut’s ability to function as a barrier to prevent toxins from entering the body. A systemic immune response can then occur, with resultant systemic inflammation.

• The genetic effect is quiescent until the wrong food appears. Therefore, food selection is of primary importance.

• Inborn errors of metabolism have long been considered to be so rare that they could be ignored. The high prevalence of food intolerance such as GSE is changing our concept of genetic disease being a rare event.

continued on page 52
Carrier individuals have been assumed to have normal function and to be free of disease. Now that the concept of “gene dosing” is understood, it is very likely that food intolerance is not just limited to the individual with two faulty genes but also affects an even greater number of carriers with one faulty gene. As with genetic disease in general, food intolerance will likely be recognized as a real and prevalent event that can be influenced by nutrition. The dietetics professional can play a valuable role in the early detection and prevention of these common, preventable disorders.

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Ruth DeBusk, RD, PhD is a geneticist and clinical nutritionist who incorporates genetics and biochemistry into individualized nutrition therapies for her clients. She frequently counsels patients with food intolerances. Contact Dr. DeBusk at 850/562-3261 or RDeBuskRD@aol.com.

Food allergies and food intolerances are adverse reactions to food. The former are well understood and accepted by traditional practitioners while the latter are complex, a bit mysterious and often looked upon with suspicion.

Dr. Jonathan Brotstoff and Linda Gamlin have written a comprehensive book on food allergies and food intolerance. It is an ideal book for health professionals and lay readers who would like an introduction to these complex topics. The authors acknowledge that there is a greater emphasis on food intolerance in their text as this subject has been “sadly neglected by conventional medicine.”

In chapter 1 the authors define food allergy as any adverse reaction to food in which the immune system is demonstrably involved. Food intolerance is defined as any adverse reaction to food in which the involvement of the immune system is uncertain because skin-prick tests and other tests for allergy are negative. Chapters 2–5 examine food allergies, discussing topics such as antibodies, mast cells, IgE, classical allergic diseases such as asthma and hay fever, identifying food allergens and treatment of classical allergies.

Food intolerance is the focus of the remaining ten chapters. Chapter 6 takes a close look at why the subject of food intolerance is so controversial. The authors describe tests that are sometimes used to identify food intolerance including cytotoxic blood tests and pulse rate changes, but caution the reader that these tests yield too many false positives and false negatives to be deemed reliable. They point out that the only accurate way to identify food intolerances is through well designed and executed elimination diets. They acknowledge that elimination diets can have their pitfalls. In chapter 14, the authors provide a 3-stage elimination diet that attempts to minimize these problems.

The remaining chapters on food intolerance include discussions of physical and mental symptoms resulting from intolerances, possible causes of intolerances, food problems in children, chemical sensitivity, candida, giardia and the prevention of food sensitivity. There are extensive appendices. A list of organizations and companies that assist individuals with food sensitivities is included in this section.

The weaknesses in this book appear to be the absence of a reference list and lack of information on the rotation diet. The authors mention that people who acquire sensitivities easily may benefit from a rotation diet, but provide very little information on how to design one.

This book is well balanced, practical and comprehensive. It is recommended for anyone interested in food allergy or food intolerance.

Reviewed by Ann Marie Chalmers Sabula, MA, RD. Contact Ann Marie at amcsabula@aol.com.

Book Review

The Health Professional’s Guide to Popular Dietary Supplements; Allison Sarubin, MS, RD; Softcover; 452 pp; $33.00 ISBN: 0-88091-180-8; The American Dietetic Association, Chicago, IL; 2000.

The increasing interest in self-care has resulted in a burgeoning market for supplements and therapies that consumers hope will provide them better health. This look at more than 70 vitamins, minerals, amino acids, ergogenics, herbs, enzymes, and other supplements is very user friendly for the professional and the lay person alike. Organized in alphabetical order, each product is arranged in a well thought out manner including a brief overview of the supplement, information on marketing claims, food sources, dosage information and bioavailability, relevant research for structure/function and health claims, and safety.

One of the most helpful sections is found in Part Two: Government Regulations and Ethical Issues where one can find an explanation of the current supplement regulations and ethical issues surrounding the use/recommendation/sale of dietary supplements by dietetics professionals. Part Three: Appendixes consists of a chart summarizing key points about each supplement, resources for further information including web sites, associations, books and other publications, and listings of supplements by category and condition.

This resource can be recommended to any person interested in learning more about supplements. It is easy to read, non-biased and well researched. For the dietetics professional desiring more information, this is an ideal introduction and reference book.

Reviewed by Sarah Harding Laidlaw, MS, RD, MPA. Contact Sarah at peaknut@wic.net.

Book Review


The intent of Volumetrics: Feel Full on Fewer Calories is to give the public a means to “use the scientific principles of satiety—the body’s signal that it’s full—to help you eat satisfying portions of foods while consuming fewer calories.” Dr. Rolls, the principal author, has a solid nutrition research background primarily focusing on hunger and obesity. Co-author Barnett is a journalist specializing in food and nutrition.

The book is divided into seven sections. In the first section, the evidence supporting the Volumetrics weight management approach is provided. The concept of energy density (calories/gram) is introduced. In the next two sections, the authors provide step-by-step instructions to calculate BMI and calorie needs and include a well-written subsection entitled “Seven Keys to Weight Management Success.” Perhaps the most time is devoted to a general overview of carbohydrates, fat, proteins, alcohol, water, and soup (yes, soup!) and how each of these fits into the Volumetrics plan. The next two sections are resources guides—continued on page 57
trolled study of healthy male subjects aged 18–24.32
Intake of Lactobacillus acidophilus decreased E. coli significantly in 6/10 subjects and increased the flora in 9/10 subjects within 7 days of administration; effects remained for 9 days after discontinuation.33 Authors suggested continuous intake to maintain high level in the intestinal tract.

Reduce/Prevent Candida albicans Infections
In a prospective pilot study of women suffering from trichomoniases, candidiasis and bacterial vaginosis who were supplemented with Döderlein’s Lactobacillus acidophilus, 60% of the women noted a marked decrease in vaginal discharge after 12 weeks.34 Most noted significant improvement after 1 week. Overall cure rate was 60–80%. In a one year crossover trial of 33 women with recurrent candidal infections given either yogurt containing Lactobacillus acidophilus or placebo yogurt for six months, a three-fold decrease in infections was seen in the Lactobacillus acidophilus group.35 Candida colonization decreased as well in the treatment group.

In a study of 500 women who tested positive for vaginitis and who were given the antifungal nystatin positive for vaginitis and who were given in the treatment group. Candida colonization decreased as well in the treatment group.

According to microbiologists, human strains are a better choice for supplementation by humans than nonhuman strains.18,38 Dairy strains are designed specifically to ferment dairy products and are selected for their lactic acid production rather than colony-forming ability. For humans, implantation and colonization are important. Human strains of L. acidophilus and B. bifidum have been used for decades in preclinical and clinical trials. Significant research has been done using Lactobacillus GG, a variant of L. casei sps rhamnosus. A minimum of 10^9 to 10^10 lactic acid bacteria have been shown to be clinically effective, with the latter being more highly recommended.39

Shelf life is critical to the effectiveness of any given product thus shelf life should be clearly visible. Products requiring refrigeration, aside from being inconvenient, may not be refrigerated during manufacturing and distribution, thus may not have adequate numbers of live cells for effectiveness. Many products on the market may not have the claimed level of live cells. Independent laboratory studies have shown some supplements claiming one billion live cells actually containing only one million.

The acids in an empty stomach are very strong and few strains can withstand this harsh acidity (pH of 1 to 2) for extended periods of time.2,40–42 Due to dilution by food after a meal is eaten, the stomach contents become less acidic (pH of 4) thus encouraging the survival of bacteria.41,42,44 L. acidophilus survival has been found to be much lower in fasted subjects than in non-fasted (fed) subjects.44 Ideally, probiotics should be consumed with food.

Conclusion
Probiotics may support intestinal health by reducing the growth of pathogenic microorganisms and their production of toxins, by aiding in digestion and vitamin production, and by enhancing local immunity, thereby increasing resistance to future infections. They appear to be beneficial in preventing antibiotic related gastrointestinal problems. Dietetics professionals should become knowledgeable about available probiotic products and should consider them reasonable and prudent supplements for maintaining and/or obtaining intestinal health.

References
Food Allergy and Its Treatment: Nothing to Sneeze At
Hester A. Doyle, PhD and Mark J. Mamula, PhD

It has been estimated that 8 percent of children experience some type of food allergy. Although many of these will resolve1, 2 with age, current figures estimate that up to 2 percent of adults experience food allergies. It has been reported that at least 100 people a year will die from food-induced anaphylaxis.3 Food allergies can manifest themselves in several forms by targeting the gastrointestinal tract, the skin (as atopic dermatitis), or the lungs as airway hypersensitivity. Considering the wide array of foods available, there are relatively few food groups that account for the majority of all allergies. For example, eggs, wheat, and soy products are found as common allergens in children, while peanuts, fish, shellfish, and tree nuts account for the vast majority of allergies in adults.3 For many of these foods, the specific protein fractions that initiate adverse allergic responses have been identified at the molecular level. This information will aid the development of potential immunotherapeutics for allergy in the future as described in more detail below.

Since the digestive tract is exposed to hundreds of different food proteins, it continues to be an area of investigation as to what biochemical properties of food allergens and specific immune responses contribute to their allergenicity. Numerous factors have been cited as contributing to allergenicity although no one factor is common to all food allergens. In particular, allergens are commonly resistant to proteolysis, possess posttranslational glycosylation, and have various enzymatic activities.4–6 In some cases, immunologic cross-reactivity of IgE between food proteins and pollen can drive allergic responses.7 In the latter example, the shared structural features between food proteins and pollen are recognized by the same immunoglobulins and cellular immune receptors thus amplifying allergic responses.

It must be remembered that the immune system evolved to protect the body from foreign infectious agents such as bacteria and viruses, not to attack and clear foreign food antigens. A sophisticated mechanism of intercellular communication usually maintains this functional integrity of white blood cells. How this system breaks down in the genesis of allergy is the principle question in the field. Similar to the immune responses to foreign pathogens, the development of food allergies is the result of the interactions of various cells and soluble molecules.8 Initially, antigen presenting cells (APC) take up an allergen, process it and present it to T cells (for Thymus-derived cell). Upon T cell recognition of the allergen, the T cell becomes activated and produces cytokines. Allergies in general are believed to be due to an imbalance in the cytokines made by two types of T lymphocytes. T lymphocytes develop and mature in the thymus with the ability to secrete a variety of cytokines (also known as lymphokines). Th1 cells secrete interferon-g (IFNg) and tumor necrosis factor (TNFα) whereas Th2 cells secrete interleukin-4 (IL-4), IL-5, and IL-10. Th1 type cytokines are typically important for the clearance of bacterial, viral and fungal infections while Th2 cytokines are critical for the clearance of parasites. However, cytokines that are produced at inappropriate times or in the wrong quantities may result in an immune imbalance. Such is the case in allergic reactions, where untoward IL-4 and IL-5 synthesis dominates the immune response.9,10 IL-4, along with the T cell itself, interacts with B lymphocytes and signals the B cells to secrete IgE. Without T cell help, B cells are unable to produce antibodies. IgE is then available to bind receptors on other white blood cells such as mast cells and basophils.

Upon the next encounter with the antigen, the above process is immediate, due to allergen-specific IgE in the circulation and peripheral tissues and other mediators preformed in the mast cells (hence the reaction is called an immediate hypersensitivity reaction). Allergen crosslinked with IgE on mast cells and basophils signals these cells to release molecules such as histamine, that affect vascular permeability of mucosal surfaces and thus cause the symptoms seen with food allergies. Other Th2 cytokines, such as IL-5, influence the recruitment of inflammatory cells such as eosinophils to the site of allergen deposition and contribute to the inflammatory pathology.

To date, the most reliable therapy to treat food allergies is to avoid the offending food. Of course, a correct diagnosis of the food allergen is essential. Diagnosis of food allergies requires careful medical histories, physical examination, and laboratory studies. In the case of IgE-mediated food allergies, analysis of specific IgE antibodies in patient’s serum can be done by RAST or ELISA (Radioallergosorbent Test and Enzyme-linked Immunoasorbent Assay, respectively). Although these tests are helpful in determining the presence of allergen-specific IgE, they do not diagnose a food allergy. The “gold standard” for determining the nature of the allergy is an oral food challenge (continued on page 56
mining food allergies has been the double blind, placebo controlled, oral food challenge (termed DBPCFC), and the foods to be tested by oral challenge are based on the patient’s medical history, laboratory results, or both.11

Once a diagnosis is made, the food allergen should be avoided. However, in cases of accidental ingestion of the food allergen, acute treatment of food allergies has taken the form of drugs such as anti-histamines and corticosteroids to control the inflammatory response, and in the case of systemic anaphylactic shock, the administration of epinephrine.11 Long term therapies have included prolonged (3–5 years) exposure to increasing doses of the food allergen in hope of inducing immune tolerance.12,13 A lack of universal success in the latter approach has caused the scientific community to investigate more novel immunotherapies. One such therapy that has proven successful in clinical trials for asthma and allergic rhinitis14 and is in trials for the treatment of peanut allergy15 is the administration of humanized anti-IgE antibody. This antibody specifically recognizes the IgE-receptor binding site on the IgE molecule preventing its binding to mast cells and the subsequent release of inflammatory mediators from cells that carry the IgE receptor. Although anti-IgE antibody therapy is likely to be expensive and require monthly injections, it can be used to treat a variety of food allergies since this therapy is not allergen specific.

A second development in food allergy immunotherapy has been to create mutations in the allergenic peptides that bind IgE. These altered peptides would serve to tolerize or desensitize patients with food allergies in a similar manner as is done with other allergies. In present studies, single amino acid mutations introduced into Ara h 1, 2, and 3, the three major peanut allergens, have reduced or even eliminated binding to inflammatory IgE.16–19 However, care should be taken when altering allergenic peptides as to not create new epitopes that may not induce T cell anergy.20 Moreover, differences between individuals for surface proteins of the major histocompatibility complex (MHC) that bind allergenic peptides may not allow this approach to be useful in all individuals. Proteins from shellfish and rice have also been identified and cloned in attempts to create recombinant proteins for the induction of immune tolerance. The emphasis on using T cell epitopes for this type of therapy is that the amount of antigen needed to tolerize T cells is less than that needed to tolerize B cells.21

A third approach utilizes DNA-based vaccines. DNA encoding an allergen is injected under the skin where it is taken up by antigen presenting cells (APC). The allergen will be synthesized, processed and presented to T lymphocytes in the context of MHC molecules on the surface of the APC. This form of vaccination induces a Th1 type response that would counteract the pathogenic Th2 response commonly associated with allergies. Recall that Th2 cytokines promote the production of IgE antibodies from B cells. This technology has recently been applied to the treatment of food allergies, in particular, peanut proteins. A less invasive oral administration of plasmid DNA encoding the peanut allergen Ara h 2 complexed with chitosan (which protects the DNA from being degraded in the digestive tract) has shown promise in mouse models by preventing allergic responses to Ara h 2.22 A variation on this method is the introduction of bacterial immunostimulatory DNA sequences, generally unmethylated palindromic CpG motifs, into plasmids encoding either an allergen or encoding IFNγ.23 These sequences boost the immune response by activating antigen presenting cells to secrete Th1 type cytokines. Again, caution must be exercised in understanding the immunologic outcomes of these approaches since IgG class antibodies can also create pathology in the form of immune complex deposition in the kidney and other tissues.

Food allergies continue to be a signifi-
cant problem for both children and adults. The most effective therapy to date is the general avoidance of those foods that cause the allergy. However, recent developments with immunotherapies offer promise that there will be new treatments to control food allergies in the future.

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Drs. Hester A. Doyle and Mark J. Mamula are in the Section of Rheumatol-
y at Yale University School of Medi-
cine. Dr. Mamula focuses on the initiation
and maintenance of autoimmunity. Dr.
Doyle has examined the structures of pro-
tiens that may be important targets of sys-
temic lupus erythematosus (SLE) and other autoimmune diseases.

Corresponding author: Mark J. Mamula, Ph.D., Yale University School of Medicine, 333 Cedar Street, P.O. Box 208031, New Haven, CT 06520-8031, Phone: 203-737-
2840, Fax: 203-785-7053.

Book Review continued from page 53

sioned to assist the reader with planning
his/her diet. Energy density (E.D.) val-
ues for many foods and beverages are
organized according to the Food Guide
Pyramid and sample menu plans are
provided. The final two sections of the
book appropriately address exercise and
environmental influences on weight
management.

The Volumetrics meal plan consists of
low energy density foods, limited fatty
foods, and much added bulk. Soup and
other water-rich foods have leading roles
in this meal plan. Consequently, this
healthy diet plan is well represented by
whole grains, fruits, vegetables, salads,
and low fat meat and dairy products,
and, of course, soups.

While the authors present good evi-
dence supporting the energy density
approach to weight management, Volum-
etrics raises questions. The authors
challenge the long-standing “myth” that
fats have the highest satiety value. Evidence is introduced that argues that
proteins and carbohydrates have the
higher satiety values. This reviewer sus-
gests further research is needed to clari-
fy satiety values of foods. Perhaps the
most problematic shortcoming of the
Volumetrics approach is that the E.D.
value is calculated using the calories in a
given weight of a food item, not the actual
volume of the food. For example, foods
such as air-popped popcorn (a high volume
food) is assigned a high E.D. value,
despite its satiety value for the few calo-
ries it provides. The authors acknowled-
ge this limitation. Interestingly, Dr.
Rolls has recently published a paper on
satiety and foods enhanced with air (Am

I would recommend this book to
the general public for the basic nutrition
overview, novel approach to weight man-
agement, interesting menu plans, and
effective illustrations. Health care practi-
tioners may find some value in this book
for its unique approach to weight man-
agement, effective illustrations, and
interesting tips. Volumetrics provides a
refreshingly sensible, non-dieting ap-
proach to weight management.

Reviewed by Laura W. Johnson, MS,
RD/LD, a consulting dietitian in private
practice in Tallahassee, Florida. She is
currently adjunct faculty at Florida State
University. Contact Laura at 850-5229
or at RDAdv ice@aol.com.

Software Review

FAP AID (Food Additive and Preserv-
ative, Allergy and Intolerance Data-
bases): ZING SOLUTIONS; CD ROM;
$200; New York, NY and Milnerton,
South Africa: 2000. Email: order@zing-
solutions.com.

This database has the capacity to assist
the dietetics professional in the diagnosis of
allergy and intolerance and other adverse
reactions to food. It is well refer-
enced with peer-reviewed medical litera-
ture that can be accessed through the
program.

FAP AID is interactive and easy to use.
It is divided into 5 menus, each with sub-
menus.

The MAIN MENU allows for search
of food and substances and provides
information in what foods the substances
may be found, allergens and potential
adverse reactions, other food family
members, cross reactions within and out-
continued on page 58
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Brenda Lynn Petesch, MS is a nutritionist
and superviser of research and develop-
ment for Wakunaga of America Co., Ltd.
She lectures nationwide on nutrition and
probiotics. Contact Brenda at 1-800-
421-2988 or bpetesch@wakunaga.com.

Software Review

This review is continued from page 57

side the food family, background infor-
mation, references and abstracts. MENU
II contains a glycemic index and print-
able lists of levels of salicylate, iodine,
lactate, purine, vitamin K, galactose,
tyramine and nickel. MENU III is com-
posed of a guide to the language of aller-
gies and intolerances, differential diag-
oses, an adverse reaction diary, diet
sheets, an elimination diet with food
reintroduction information, and recipes
that accommodate diets that restrict one
or more foods. MENU IV includes a sec-
tion on specific conditions such as occu-
pational and exercise asthma and ana-
aphylaxis, reaction-causing substances in
a limited number of occupations, photos
and images that are helpful for visual
diagnosis, and hidden allergens. MENU
V provides a searchable database, ab-
stracts, a place for sharing practice
details, a forum for sharing ideas
with other users. Pictures of allergenic
foods, trees, herbs, grasses, etc. with
Immuno CAP RAST® codes are helpful
in identifying various allergenic plants,
from poison ivy to chamomile.

The only limitations this program
appears to have, which should be remed-
died in future updates, are a limited num-
ber of specific conditions and occupa-
tions addressed and a limited number of
photos of clinical conditions with
descriptions. More photos of common
medicinal herbs would also be helpful.

All in all this is a very useful product,
especially for those who work with
patients suffering from allergies and intoler-
ances.

Reviewed by Sarah Harding Laidlaw,
MS, RD, MPA. Contact Sarah at
peaknut@wic.net.
CPE Questions

Objectives

1. Define and explain immunology related terms and concepts
2. Review the immune system pathway in food allergens
3. Identify the interrelationship between genetics and food allergies
4. Discuss new, promising treatments for food allergies

Select the correct answer(s). Note that a question may have none, one or more than one correct answer.

1. Factors contributing to food allergenicity include
   a. allergens not being digested (proteolyzed)
   b. posttranslational glycosylation
   c. pollen
   d. age of the gastrointestinal tract

2. Food allergy development follows a common path. What is the correct order of the steps listed below?
   1. allergen taken up and presented to T cells
   2. stimulate B cells to produce IgE
   3. IgE binds to mast cells
   4. cytokines produced
   5. histamine released
   a. 1, 2, 3, 4, 5
   b. 1, 3, 4, 2, 5
   c. 3, 2, 4, 1, 5
   d. 1, 4, 2, 3, 5

3. Which of the following statements is (are) TRUE?
   a. A medical history is not very important in diagnosing a food allergy since they are mostly inherited.
   b. With the development of RAST or ELISA tests, the double blind, placebo controlled, oral food challenge is considered outdated.

4. Creating mutations in peptides that bind IgE has been useful for treating allergies to
   a. fish
   b. peanuts
   c. shrimp
   d. milk
   e. soy

5. An example of a cytokine is
   a. tumor necrosis factor
   b. interferon-g
   c. interleukin-4
   d. mast cells
   e. epinephrine

Match the terms and definitions:

   6. CD4 T cell subset that produces IL-2, interferon, and tumor necrosis factor.
   7. Become unresponsive to an antigen or allergen.
   8. These motifs have the ability to activate immune cells.
   9. The site on an antigen recognized by the antibody.
   10. Proteins produced by cells that affect the function of other cells.

   a. Epitope
   b. Tolerize
   c. Th1 cells
   d. Cytokines
   e. IgE
   f. Th2 cells
   g. Allergy
   h. Plasmids
   i. Palindromic CpG Motifs

This activity has been approved for two hours of CPE credit. You will be notified if hours are not awarded.

Cost: $12.00 NCC members
      $20.00 non-members

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Mail to:
   Felicia Busch, MPH, RD, FADA
   Felicia Busch & Associates, Inc.
   1804 Lindig Street
   St. Paul, MN 55113-5538
Sarah Harding Laidlaw, MS, RD, MPA  
P.O. Box 23089  
Glade Park, CO 81523-0089