ALLERGY SOCIETY
ALLSA
OF SOUTH AFRICA

Information Sheet

FOOD ADDITIVES AND PRESERVATIVES

Food additives and preservatives play a vital role in maintaining a tasty, nutritious and safe supply of food year-round to our growing urban population. Without preservatives or other additives, a great amount of food on shop shelves would "go off" before being bought. For example, bread would last only about two days before becoming stale. Additives and preservatives also make possible an array of convenience foods that we have come to accept as part of modern life.

Additives are categorized by their function in food:
Preservatives: prevent food from deteriorating due to age or bacterial growth, such as vinegar, sugar, salt, sulphur dioxide, sodium benzoate, nitrate, sorbic acid and pimaricin.
*Anti-oxidants: s*top fats and oils from going rancid; for instance, ascorbic acid in butter
Emulsifiers and stabilisers: mix foods, particularly oils and water, and prevented them from separating: an example is calcium alginate in ice cream
Colourants: make food more colourful; two examples are tartrazine and sunset yellow
Flavour enhancers: bring out flavours in food; such as monosodium glutamate (MSG)
Anti-caking agents: stops powdery foods from forming lumps (as in salt)

The vast majority of additives and preservatives appear to be safe. Many laboratories throughout the world have tested them before they are used in foods. However, individuals may be "sensitive" to various additives and preservatives. Government agencies control which substances, and in what amounts, may be used in the production of food. In South Africa the Department of Health controls the use of food additives and preservatives.

Individuals affected by preservatives
In the majority of cases, individuals can eat food containing these substances without any ill effects. However, in some individuals, and particularly those with an allergy, these substances may result in adverse reactions. Some substances result in more such adverse reactions than others. For example, reactions to sulphur dioxide and sodium benzoate occur more commonly in asthmatics than reactions to the colourant tartrazine.
Reactions to Food Additives and Preservatives are not "true" allergies such as an egg or milk allergy in an infant, but instead are usually a type of chemical reaction. Reactions depend on the type of preservative or additive ingested and may include vomiting, rashes, hives, a tight chest, headaches, worsening of eczema, and many other symptoms. Combinations of symptoms may give your doctor a strong clue as to the substance causing the reaction. However, similar reactions may occur with a true allergy and may therefore make the diagnosis difficult. Also some foods have natural chemicals that may have their own effect. For example, tuna fish that's not fresh may have a high level or histamine, cheese may have tyramine, and so you may react to the naturally occurring histamine in wine and not the sulphur dioxide that has been artificially added!

Additives and Preservatives resulting in adverse reactions
There is a very large range of additives and preservatives that may result in adverse reactions, the more important ones are as follows:

Sulphur Dioxide

Fruit juices	Concentrated soft drinks
Dried fruit	Boerewors
Dried wors	Wine
Beer	Some sauces
Pickles	Hamburger patties

(Shortened list)

Preservatives:
Sulphur dioxide and sodium benzoate often cause "tight chests" in individuals who have asthma. Many people also complain of a scratchy feeling at the back of their throats. Although these are the common reactions, others such as rashes may also occur. Sulphur dioxide may be labeled as sodium metabisulphite, potassium metabisulphite, sodium or potassium bisulphate, or sulphite.
More information can be found on the Internet at:
http://www.allergysa.org/html/intolerance.html

Antioxidants:
Theses are substances that prevent oily foods from becoming rancid. Some individuals complain of reactions to BHA or BHT. Fortunately, reactions to these substances are not common. Reactions include rashes, hives, and occasionally "tight" chests.

Sodium Benzoate

Soft drinks
Fruit juices
Foods with fruit

(Shortened list)

Colourants:
Colourants may be natural or synthetic. Reactions, although not common, can occur to both types. The best-known colourant is tartrazine. Tartrazine is an azo dye, so if you react to this colourant, you should avoid all of the azo dyes. Although many people are concerned that they may be affected by colourants, not many individuals are in fact affected. Thus not all asthmatics need to avoid tartrazine. Whether tartrazine or other colourants can result in hyperactivity in children is still controversial.

Fruit juices
Soft drinks
Sweets
Desserts
Toppings
Syrups
Cooking oils
Sauces
Pickles

(Shortened list)

Emulsifiers and Stabilisers:
These are substances that keep oil and water mixed, as in mayonnaise. These substances do not usually cause reactions but if derived from soya bean any reactions occurring may be due to a true allergy to the soya protein.

Oriental food
Packet soups
Sauces
Soya sauce
Seasonings
Aromat
Also occurs naturally in:
Mushrooms
Tomatoes

(Shortened list)

Flavour Enhancers:
The most famous of these is monosodium glutamate, commonly called MSG. Eating foods with this additive may result in tight chests in asthmatics. This reaction may occur immediately or 6-12 hours later. A condition called "Chinese Restaurant Syndrome" may occur in any individual, when symptoms occur about 20 minutes after a food containing MSG has been eaten on an empty stomach. Typical symptoms include headache, a burning sensation along the back of the neck, chest tightness or pain, nausea, sweating, and a sensation of facial pressure. "Pins and needles" or tingling may be experienced in the limbs or face and head. It is not a common condition.

Ice cream	Curry Powder
Paprika	Dried Powder
Berries	Ginger
Almonds	Apricot
Oranges	Tea
Honey	(Shortened list)

More information can be found on the Internet at: *http://www.allergysa.org/html/msg.htm*

Sweeteners:
The artificial sweetener aspartame may cause rashes or hives in sensitive individuals. This sweetener is added to many "low calorie" foods.

Salicylates:
Acetyl salicylic acid found in aspirin may result in a "tight" chest or hives in allergic individuals. A different form of sylicylic acid occurs normally in a variety of spices and foods. Some health professionals believe that this type of salicylate can result in many side-effects, including hyperactivity in children. However, this is still controversial.
More information can be found on the Internet at: *http//allergysa.org/html/aspirin.html*

Caffeine:
Caffeine occurs naturally in cocoa bean, coffee and in tea. It may be added to soft drinks and other foods. Adverse effects vary with an individual's level of sensitivity and include tremor, insomnia, nausea, anxiety and others.
More information can be found on the internet at: h*ttp://www.allergysa.org/html/caffeine.html*

Diagnosis:
The diagnosis may not always be obvious. In some instances, the reaction will immediately follow the ingestion of an additive or preservative, as with sulphur dioxide and sodium benzoate. In other cases, the reaction may be delayed for 6 to 24 hours. Until recently there have been no readily available diagnostic test to aid the diagnosis of sensitivity to various food additives. For example, the classical CAP RAST test for various food allergies is not appropriate as these reactions to food additives are not IgE-mediated. However, a newly developed test called CAST (Cellular Antigen Stimulation Test) is now available in South Africa. CAST simulates in vitro the reaction between the patients' leukocytes and the antigen CAST measures the production of liberated and newly synthesised sulphido-leukotrienes, which are mediators in the immune response to the antigen. CAST has a wide range of allergens available, but has shown itself to be most useful for the diagnosis of drug allergy and food additives. The following tests for food additives are available in the CAST assay system:

Food Colourant Mix 1	Mix Colourant Mix 2	Tartrazine
Sodium Benzoate	Sodium Nitrite	Sodium Metabisulphite
Sodium Salicylate	Quinolene Yellow	Sunset Yellow FCF
Chromotrope B	Amarinth	New Coccine
Erythrosine	Patent Blue V	Indigocarmine
Brilliant Black BN		

For information on the availability of a laboratory service for CAST, please contact Laboratory Specialities on 011 792 6790.

Besides the use of laboratory tests to aid the diagnosis of sensitivity to food additives, the patient may have to keep a Food Diary and record all the food eaten, the time it was eaten, and when the reaction occurred. It may then be possible to see if there is a pattern to the reaction. Once there is a suspicion against a particular food, the doctor may suggest a "challenge" with the substance to see if the culprit has indeed been correctly identified.

Avoid Additives and Preservatives
Read labels on foods very carefully and avoid all food that contains the preservative or additive that you are affected by. You may have to follow a preservative and additive-free diet for at least two weeks to check whether you are indeed affected or not. Your local dietitian will assist you in drawing up a suitable diet. You may have to regularly carry a special adrenaline injection ("Epipen") with you if the symptoms you experience are potentially life-threatening.

The author has developed a software program Food, Additive and Preservative Allergy & Intolerance Database[(1)] that assists heal professionals to determine possible substances responsible for reactions seen.

[(1)]Food, Additives & Preservatives Allergy & Intolerance Database, FAP-AID. *http://www.zingsolutions.com/food*

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See the ALLSA Internet site at:
http://www.allergysa.org

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