Allergenicity of Edible Oils

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Food allergies are caused by proteins in food. These naturally occurring proteins are referred to as allergens, and the vast majority of them are resistant to heat and digestion. While there are tens of thousands of proteins in any one food, only a few are allergenic. The mechanism by which food allergies are initiated is through the action of specific antibodies. These antibodies are part of the body's defense system and their role is to attack "foreign" substances encountered in the bloodstream. In food allergic individuals these antibodies attack the protein components of certain foods, resulting in allergic reactions.

Edible oils processed by typical US procedures are highly refined and contain no detectable protein. Because they are virtually free of allergenic protein, these oils should be safe for allergic individuals to eat. These refined oils are also used in the production of salad dressings, margarine and many other food products; therefore, these products should also be safe for allergic individuals if they do not contain other sources of allergens.

Edible oils may be safely consumed by sensitive individuals under most circumstances; however, there are some exceptions that are important to recognize. Oils may be used as frying mediums for a variety of foods. If the food being fried in the oil contains an allergenic protein, traces of that protein may be left behind in the cooking oil. The oil and other foods cooked in it may then contain minor residues of protein and pose a slight potential risk to allergic individuals.

Some edible oils may be extracted and processed by procedures that do not remove all proteins present. While the vast majority of oils found in the US are refined by processes which remove virtually all protein, mechanical or "cold press" extraction is occasionally used, which may not remove all protein. These cold pressed oils are rarely used domestically and are usually found only in health food or gourmet food stores. Studies using cold pressed soybean oil have shown it to be safe; however, insufficient testing has been done to ensure that all cold pressed oils can be safely consumed by sensitive individuals.

Edible oils have been blamed for causing allergic reactions in people, but there are conflicting views and inadequate scientific evidence regarding their allergenicity. Many reports alleging edible oil allergenicity have been testimonial in nature. Of those reports that have been scientifically recorded, most lack evidence that edible oils were indeed the causative agent or were even ingested. For example, many investigators did not perform tests to confirm an allergic response from the oil in question nor were analyses conducted to determine if protein was present in the oil. Also many reports do not indicate if the oils were cold pressed or not. There is also a lack of scientific data to determine the levels of

proteins needed to cause an allergic reaction; therefore such tolerance levels in humans have not been established. Furthermore, the sensitivities of food allergic individuals may vary widely, and not all allergenic foods have the same tolerance level.

While some consumers are convinced they are allergic to edible oils, there are usually alternate explanations for these reactions. For example, foods containing peanuts, a common allergenic food ingredient, may be cooked in peanut oil. An allergic reaction experienced as a result of eating this food may be mistakenly blamed on the oil. Also foods containing inherent allergens may be cooked in edible oils resulting in traces of the allergenic protein being left behind in the oil. Restaurants and food service facilities should therefore exercise caution in cooking techniques and be able to readily identify not only the oils used but also a complete list of all foods cooked in the oil.

In summary, the vast preponderance of edible oils consumed in the US are highly refined and processed to the extent that allergenic proteins are not present in detectable amounts. The majority of well-designed and performed scientific studies indicate that refined oils are safe for the food-allergic population to consume.

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