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## SALICYLATES, OLIGOANTIGENIC DIETS, AND BEHAVIOUR

SIR,—Our experience in the dietary investigation of children with behaviour disturbances supports the general conclusions reached by Dr Egger and colleagues (March 9, p 540). However, in view of Feingold's suggestion that natural salicylates frequently provoke hyperactivity, it is surprising that Egger et al did not attempt to exclude them from their "oligoantigenic" diets or to challenge their

patients with salicylates.

We have investigated 140 children, using a modified elimination diet and challenge protocol devised for the management of recurrent urticaria.2 Of 86 children who experienced significant improvement, nearly three-quarters reacted to double-blind challenge with salicylates but not placebo. We also found a high frequency of reactions to preservatives (including benzoates, nitrate, metabisulphite, and propionic acid), azo-dyes, antioxidants, brewer's yeast, amines (tyramine and phenylethylamine) and monosodium glutamate (MSG), most children reacting to between two and five challenge compounds. These substances are associated with cumulative dose dependence, tachyphylaxis, withdrawal reactions, and supersensitivity, suggesting that their effects are likely to be pharmacological rather than immunological. Although our findings support Feingold's claims we have found his diet unsuitable for the management of food-related behaviour disturbances. Apart from its failure adequately to exclude natural amines and MSG, laboratory analyses3 have shown that many foods allowed on the Feingold diet are rich in salicylates. This may account for the largely negative results of controlled studies.

The oligoantigenic diets administered in the first phase of Egger's study constitute a major reduction in intake of all the substances listed above, so it is not suprising that significant improvement in symptoms was seen in sensitive children. Of the 39 foods universally tested in the second phase (leaving aside colourings and preservatives), 24 contain significant amounts of natural salicylates, amines, and/or MSG (see table). The dose threshold for precipitating symptoms is lowered on a restricted diet, and we find that sensitive individuals frequently react to several of these foods, particularly when consumed in combination, or on several successive days; in our hands, the foods incriminated correlate well with the results of double-blind challenge with the relevant chemical constituents. Adverse reactions occur when the dose threshold is exceeded, and depend on the amount consumed and frequency, as well as on recent intake of other foods containing the same compounds. Since many different foods may contain the same substances, it is easy to be misled into diagnosing "multiple food allergy" when the common denominators have not been identified. Thus, we would interpret reactions to different food combinations as being suggestive of pharmacological idiosyncrasy rather than food allergy.

As Egger et al point out, allergy and idiosyncrasy may coexist. In our experience the incidence of reactions to food chemicals is similar

## SALICYLATE, AMINES, AND MSG REPORTED IN FOODS STUDIED BY EGGER ET AL

Food*	Chemical+	Food	Chemical+	Food	Chemical+
Soya		Maize	S	Tea	S
Cow's milk		Fish	A	Coffee	S
Chocolate	A	Melons	S	Other nuts	S, A
Grapes	S, A, MSG	Tomatoes	S, A, MSG	Cucumber	S
Wheat		Ham, bacon	A, N	Banana	A
Oranges	S, A	Pineapple	S, A	Carrot	S
Cheese	A	Apples	S	Yeast	S, A
Eggs		Pork	A	Apricots	S
Peanuts	S, A	Pear's	S#	Onions	S

\*Recognised allergens in atopic eczema\* shown in bold face.

†Source: refs 3, 5, and 6. Quantities vary with each food, and also depend on ripeness, source, variety. In fruits and vegetables concentrations are often highest in skin. Salicylates (S), amines (A), and MSG not reported to be present in oats, sugar, beef, beans, peas, malt. Chicken, potato, peaches, lamb, turkey, or rice.

‡Skin.

in patients presenting with both urticaria and eczema, but the latter atopic group are frequently also sensitive to the common food allergens (milk, eggs, grains, peanuts, and fish). We have generally not found that these foods provoke symptoms in children with behaviour disturbances, but only two of our responding patients had eczema, compared with nearly 40% in the study of Egger et al.

The oligoantigenic diets described by Egger et al seem to us to be arbitrary and difficult to apply in routine practice. With a standardised elimination diet and challenge protocol<sup>2</sup> we can almost always devise a suitable diet for a child within three months, thus lessening the disruption of family life.

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