

## PRACTICAL THERAPEUTIC DIETETICS

### PART IX: THE DIET FOR GLUTEN-INDUCED ENTEROPATHY (COELIAC DISEASE, IDIOPATHIC STEATORRHOEA)

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Gluten-induced enteropathy is a metabolic disturbance which is manifested by steatorrhoea following the ingestion of gluten (gliadin). Adults with idiopathic steatorrhoea usually (approximately 70%) show a marked improvement, if not total recovery, when gluten is omitted from the diet. In children the recovery rate is probably higher. Gluten is a protein fraction found particularly in wheat

and rye, and all products made from these cereals must be avoided for an indefinite period by patients. However, it is interesting that there appears to be an interval between the ages of 10 to 30 when gluten can be taken with impunity.

Weijers and Van de Kamer in Holland, who have done much of the pioneering work in this disease, have classified protein according to the volume of nitrogen expressed as a fraction of the volume of the *total non-amide nitrogen*. A

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value of 11% or less is harmless to these individuals; while values of over 11% may precipitate an attack of steatorrhoea. The higher the value, the more likely it is to cause an attack. Wheat flour (having a value of 23) is the main offending substance; barley (value 14) and oats (12) may or may not be tolerated by particularly sensitive individuals.

Patients may show a dramatic response to this diet, but it may take up to 6 months or longer to have an effect. Although this would seem to be a relatively simple diet to follow, several factors should be borne in mind when treating these patients.

Gluten is not only present in the obvious wheat and rye products but is present in traces in many commercial foods. Even a food like 'oxo-cubes' contains a small amount of gluten and certain types of processed meats are prepared with added flour. The disease may relapse after ingestion of as little as 1 G of gluten per day. Fortunately, a public-spirited parent of a child with this disease has undertaken the arduous task of writing to many of the food factories in the country to ascertain which of their products contain gluten, and has made copies of the lists of offending foods available. Of course, the composition of recipes may change without warning and cause a severe attack of steatorrhoea in any unsuspecting patient.

The psychological implications of this disease may be tremendous. Birthday parties, which are happy and festive occasions in the lives of children may encourage cheating and deviation from the diet. Ordinary sandwiches cannot be taken to school and packed lunches can present great feeding problems to the housewife: even the bread at Holy Communion should not be taken by these patients. The continuous stress of taking a strict diet and the knowledge that the length of time necessary for this regime is as yet indefinite, is a severe handicap to the patient—and, in children, to the patient's family.

Until recently, wheat starch (i.e. flour from which the gluten has been removed) had to be imported at great cost from Britain, but a Rhodesian flour-mill has now started producing this substitute which can be used in the place of flour for making bread and cakes. However, as it is the gluten (from the Latin for 'glue') which causes the dough to rise, products of a high standard are extremely difficult to achieve. Rice, potato and cornflour are generally used by these patients, and air is incorporated into recipes by using stiffly beaten egg-whites, creamed sugar and butter or other basic methods. Bread is, however, still the most difficult food for which to find a comparable substitute. Gluten-free bread may be made from the following recipe and, while it will produce a crumbly and rather heavy texture, it will to some extent increase the palatability of the diet.

**Ingredients:** 4 oz. cornflour ('maizena'), 4 oz. potato flour, 1 teaspoonful sugar, 3 level teaspoonfuls baking powder,  $\frac{1}{2}$  teaspoonful salt, 1 egg. Sift all the dry ingredients together. Beat egg well and fold into the dry ingredients. Add water to make a soft dough. Put into a greased baking tin and bake in a hot oven until set (about 10 mins). Finish in a slow oven—total time about 25 mins.

#### Forbidden Foodstuffs

The following are some examples of foods in common use which may not be taken as they are made from or

contain wheat or rye flour:

**Cereals.** Bread, biscuits, pastries, cakes, rusks. Breakfast cereals such as 'cream of wheat', 'vita-wheat', 'weetbix', 'shredded wheat', 'grapenuts', 'energen' rolls, 'provita' biscuits and semolina products. Spaghetti, macaroni, vermicelli and noodles are also forbidden.

**Miscellaneous.** Malted milk, 'ovaltine', 'milo', bought ice-cream, factory-prepared corned beef and ham, fish or meat pastes, commercial sauces, sweets of unknown origin. All packet soups, cake and pudding mixtures may contain flour.

#### Cereals Allowed

The following breakfast foods are harmless: kaffir-corn ('maltabella'), mealie-meal, cornflakes, puffed rice, rice crispies.

#### Practical Suggestions for the Preparation of the Diet

1. Before frying fish, dip the slices into egg and then coat with mealie-meal instead of flour.
2. Stews may be thickened with cornflour or soya flour.
3. Crumb all leftover gluten-free bread—this is most satisfactory for binding meat rissoles or making bread-crumble pudding or cake recipes.

#### SAMPLE MENU

##### Breakfast

Stewed dried fruit, oat-porridge with milk and sugar, egg (prepared as desired), gluten-free bread, butter, jam, tea or coffee.

##### Dinner

Average portion grilled meat, vegetables and salad, rice pudding, or junket, or blancmange (made from cornflour), or jelly, or stewed fruit.

##### Supper

Vegetable soup, baked fish and vegetables, dessert as at dinner, custard or cream if desired, tea or coffee if desired.

##### Bedtime Snack

Cocoa, meringue.

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