Influences on Nutritional Status

Health and the effect of heredity and role of diet in the development of conditions.
### Influences on nutritional status

- health and the role of diet in the development of conditions, including obesity, diabetes, cardiovascular disease, food sensitivity/intolerance/allergies
- lifestyle and the effect of cultural and social practices on nutritional status
- media and ethical issues related to advertising practices on food consumption such as the promotion of ‘health’ foods and ‘fast’ foods

- describe the relationship between nutrient intake and dietary disorders
- discuss ethical issues related to the responsible advertising of food products
How does your diet influence your health?

The foods an individual chooses to eat has a major role in influencing their nutritional status.

Although some dietary disorders such as; Diabetes and Cardiovascular Disease can be hereditary, individuals need to pay close attention to their diets.

Balanced Diet \rightarrow \text{Adequate amounts of nutrients} \rightarrow \text{Good Health}
Some people in society experience adverse reactions after consuming a specific food product. This may be either a **food allergy** or a **food intolerance**.
What is a Food Allergy?

A **food allergy** occurs when the body’s immune system responds to a specific food protein (an allergen) and incorrectly identifies the allergen as a dangerous foreign protein.

Antibodies are then produced in order to destroy the food protein. This reaction between the allergen and the antibodies cause the symptoms of the allergy, which can be dramatic and life-threatening, even with only very tiny amounts of the allergen present.

**Common Food Allergens:**

- Peanuts
- Other Nuts (‘tree nuts’)
- Egg
- Milk
- Seafood
- Sesame
- Wheat
- Soy
Symptoms of Food Allergies

- Wheezing
- Sneezing
- Stomach Pains
- Diarrhea
- Swelling
- Rash
- Mouth Ulcers
- Vomiting
Identifying and Managing Food Allergies

Food allergy reactions often occur immediately after the allergen-containing food is consumed, and this enables the possible causes to be identified.

**Skinprick Testing** is then used to confirm whether the suspected foods are the cause. This test shows whether the individual has specific antibodies to a specific food protein, by pricking the surface of the skin (usually on their forearm) with a solution of the suspected food.

Multiple suspected allergens may be tested at the same time. If antibodies are present for a specific food, a wheal (a raised lump like a mosquito bite) forms where the skin was pricked.

If the result of the skinprick test is unclear, a supervised *food challenge* can be done to observe the individual’s physical reaction to specific food allergens eaten in a strictly controlled environment such as an allergy clinic.
Skin testing can help to identify the specific allergens that are causing the symptoms. Wheals have developed where this person has reacted to some of the test antigens.
Once a specific allergen has been identified as the cause of the symptoms, a long-term management plan is needed to prevent a life-threatening reaction.

Someone with an allergy will need to ensure complete avoidance of all foods that contain even small amounts of the allergen.

The Food Standards Code (FSANZ) requires all food companies to list all the ingredients in a food product or used in processing, and there is mandatory labelling of the most common allergens.

Many people who are highly allergic will often have allergies to several different things. Children’s response to allergens such as egg and milk can lessen with age, as the body becomes desensitised to the allergen over time. Nuts (including peanut) and fish allergies may persist into adulthood.
Coeliac Disease is the condition in which the presence of gluten damages the lining of the small intestine. Gluten is a protein found naturally in wheat, barley and rye.

The damage caused to the intestinal lining means that the gut cannot absorb nutrients properly, leading to nutritional deficiencies. Continuing exposure to gluten increases the risk of developing a type of gut cancer.

The symptoms of coeliac disease can include:

- Gut symptoms such as; abdominal cramping, nausea
- Diarrhoea or flatulence (accumulation of gas)
- Signs of malnutrition such as; weight loss, anaemia or osteoporosis

A blood test can indicate whether someone possibly has an immune reaction to gluten but the only definite way to confirm coeliac disease is by sampling part of the intestinal lining in a biopsy.

Once diagnosed, coeliac disease must be managed with a strict diet that avoids all foods containing gluten.
<table>
<thead>
<tr>
<th>TYPE OF FOOD</th>
<th>FOODS TO AVOID</th>
<th>FOODS TO INCLUDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat</td>
<td>Prepared products such as processed meats, meat pies and frozen dinners; sausages</td>
<td>Fresh, canned, smoked or frozen meats that do not contain sauces or crumbs; bacon, ham</td>
</tr>
<tr>
<td>Dairy products</td>
<td>Ice-cream in cones; processed cheese, pastes and spreads; milk products with malt (e.g. malted milk)</td>
<td>Fresh, UHT, condensed, evaporated, powdered or dried milk; some ice-creams, cream, cheese, cottage cheese</td>
</tr>
<tr>
<td>Takeaways</td>
<td>Pizzas, battered or crumbed food, hamburgers, souvlaki</td>
<td>Grilled fish, steak and chicken; steamed rice and vegetables</td>
</tr>
<tr>
<td>Bread</td>
<td>All bread including rye bread; breadcrumbs, croissants, bagels</td>
<td>Gluten-free bread, rice cakes</td>
</tr>
<tr>
<td>Flours</td>
<td>Wheat, rye, barley and triticale flours</td>
<td>Lentil, potato, rice, tapioca and soya flours, pure maize cornflour, cornmeal, gluten-free baking powder</td>
</tr>
<tr>
<td>Cereals</td>
<td>Most commercially prepared breakfast cereals; porridge, muesli</td>
<td>Homemade muesli made using gluten-free products; rice and corn cereals</td>
</tr>
<tr>
<td>Pasta and rice</td>
<td>Most pastas</td>
<td>Gluten-free pasta; rice; rice vermicelli; rice noodles; cornmeal; pure corn taco shells and tortillas; pure corn and rice cereals</td>
</tr>
<tr>
<td>Fruit</td>
<td>Prepared pie fillings</td>
<td>Fresh, frozen, dried and canned fruit; 100 per cent fruit juices</td>
</tr>
<tr>
<td>Vegetables</td>
<td>Vegetables in crumbs and/or sauces; creamed vegetables; commercially prepared potato salad</td>
<td>Fresh, frozen, dehydrated and canned vegetables that do not have sauces; 100 per cent vegetable juices</td>
</tr>
<tr>
<td>TYPE OF FOOD</td>
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<tr>
<td>Legumes and nuts</td>
<td>TVP (textured vegetable protein); processed legumes that have been thickened</td>
<td>Gluten-free baked beans; peanut butter, dried peas, beans, nuts and seeds</td>
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<tr>
<td>Snacks and</td>
<td>Cakes and cake mixes, biscuits and biscuit mixes, buns, muffins, pikelets,</td>
<td>Popcorn, gluten-free corn chips, rice cakes and crackers, plain chocolate, fresh</td>
</tr>
<tr>
<td>flavourings</td>
<td>crumpets, licorice, filled chocolates, white pepper, mustard, sauces, chutneys,</td>
<td>herbs, spices, vinegar, honey, jam, marmalade, peanut butter, golden syrup, pure</td>
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<td></td>
<td>pickles, curry powder, stock cubes, soy sauce containing wheat, Marmite,</td>
<td>cocoa, gelatine</td>
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<tr>
<td></td>
<td>Promite, salad dressings and mayonnaise that contain flour, most savoury</td>
<td></td>
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<tr>
<td></td>
<td>snacks</td>
<td></td>
</tr>
<tr>
<td>Beverages</td>
<td>Coffee substitutes, malt, drinking chocolate, Milo, Oválite, milk</td>
<td>Coffee, tea, milk, water, mineral water, soft drink, fruit and vegetable</td>
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<tr>
<td></td>
<td>flavourings</td>
<td>juices, cordials</td>
</tr>
<tr>
<td>Desserts and</td>
<td>Most frozen desserts, custard powder, instant puddings; confectionery</td>
<td>Jelly, meringue, some ice-creams, pavlova</td>
</tr>
<tr>
<td>confectionery</td>
<td>containing glucose syrup or dextrose unless specifically gluten free</td>
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</table>
Define ‘food allergy’ and describe how it is diagnosed.

(4 Marks)
Name FIVE of the most common food allergens. (5 Marks)
A food intolerance is different from a food allergy in two ways:

1. The response does not usually involve the immune system.
2. The body is not responding to an individual protein, but to other chemicals found widely in a variety of foods, and sometimes requiring large amounts to cause a reaction.

**Food Intolerances** are an individual’s response to a specific chemical or combination of chemicals. It occurs when a person has difficulty digesting a particular food.
Sometimes a food intolerance may be triggered by food chemicals.

- **Salicylates** - Group of chemicals found in all plant foods - many fruits and vegetables, spices, herbs, nuts, tea, coffee. Also used as an additive in foods and used in eucalyptus and peppermint flavoured products.

- **Amines** - Group of chemicals that are found in cheeses, processed meats, beer and wines. Also found in some fruit, vegetables (bananas, tomatoes, avocados) and also in chocolate.

- **Glutamate** - One of the amino acids. Found naturally in plants and animals. It provides part of the savoury flavour in foods such as; mushrooms, tomatoes and tomato products, cheeses, soy sauce and meat extracts. Also used as monosodium glutamate (MSG) and used as a flavour enhancer in many snack foods and in Asian cooking.
Symptoms of Food Intolerances

Symptoms may appear shortly after eating the food or some time later. Some of the symptoms may be very similar to those of a food allergy.

A wide variety of symptoms have been reported as resulting from a food intolerance, including the following;

● Skin symptoms such as; hives, eczema, skin rashes, mouth ulcers
● Blocked nose, sinus pain, asthma
● Abdominal pain, nausea, diarrhoea, flatulence, constipation
● Headaches, lack of energy, dizziness, ringing or buzzing sound in the ears, impaired memory and concentration
● Behaviour and mood symptoms such as; depression, irritability, aggressive behaviour
Identification of a food intolerance is far more complicated than the identification of a food allergy because it involves chemicals and are present in a much wider range of foods.

In the case of a food intolerance, the specific chemicals need to be isolated. To do this, the individual is placed on a strict elimination diet. The elimination diet allows only a narrow selection of foods to be consumed—that is, those foods that do not contain high levels of any substances likely to cause reactions. They are very bland foods because they are low in flavourful food chemicals.
The following foods are included in the elimination diet:

- **Meats** - only lamb, veal and skinless poultry
- **Eggs**
- **Fats** - only safflower and sunflower oils
- **Vegetables** - only lettuce, parsley and thickly peeled old potatoes
- **Fruits** - Only thickly peeled fresh ripe pears, or pears canned in syrup (not juice)
- **Cereals** - only white rice and rice products, wheaten cornflour, arrowroot flour and potato flour
- **White sugar**
- **Beverages** - only instant coffee, pear juice, mineral water and soda water

It takes between 2 - 6 weeks for the intolerance symptoms to become less severe. Once all of the possible chemicals have been eliminated from the body, chemicals suspected to be responsible for the symptoms are re-introduced into the diet one by one as a food challenge. If no effect is identified after 2 days, the next challenge is introduced.
Long-term management of a food intolerance does not require complete avoidance of the chemicals that cause the problem, since the reactions usually depend on how much is consumed.

Reducing the offending foods, and establishing how much is safe, is important.

Managing a food intolerance can be more complicated than managing a food allergy, because a much wider range of foods will contain the specific chemical or chemical group that causes the symptoms. Also, the chemicals occur both naturally in foods, and as additives.
A Closer Look: 'Lactose Intolerance'
A lactose intolerance is not to be confused with a milk allergy.

A milk allergy is an immune system response to milk protein, whereas a lactose intolerance results when an individual has difficulty in digesting lactose.

Lactose is the main carbohydrate in milk. It is a disaccharide that is broken down in the gut to monosaccharides. This process requires an enzyme known as lactase.

If the body produces insufficient lactase, some lactose is not broken down and cannot be absorbed. Unabsorbed lactose reaches the colon, causing a watery stool. This can also cause gas and abdominal cramping.
1 million Australians have some degree of lactose intolerance, suffering from discomfort, diarrhoea or flatulence if they have too much lactose.

The majority of sufferers are of Asian, Aboriginal or Mediterranean background but lactase levels will eventually decrease if the individual does not consume any lactose.

Lactose is naturally found in dairy foods, in different amounts, and may also be used as an additive in many processed foods.

Children who have one family member with an allergic disease have a 20-40% higher risk of developing the allergy than children with no hereditary links.
How to Manage a Lactose Intolerance

In order to manage a lactose intolerance, it is preferable to:

➔ Choose dairy foods that are lower in lactose, such as; lactose-reduced milk, cheese that are naturally in lactose, and yoghurt.
➔ Limit the amount of dairy food consumed at any one time.
➔ Spread dairy food intake out over the day so that the gut receives a small amount of lactose at a time.
➔ Consume dairy foods with meals, rather than on an empty stomach, so that the lactose is gradually decreased, with the other foods.
Distinguish between an allergy and an intolerance. (4 Marks)
Practice Questions

What is meant by a food challenge. (2 Marks)
Practice Questions

Why is it more difficult to diagnose food intolerance than a food allergy. (2 Marks)
Plan a lunch option using only those foods that are included in the elimination diet. (4 Marks)