Foods that account for 90% of food allergic reactions:

- milk
- eggs
- peanuts
- tree nuts
- wheat
- soy
- fish
- shellfish

Statistics for Intolerance Lactose:

- 75% of people worldwide
- 5% of Europeans
- 90% Africa populations
- babies have it but then lose it as adults

Allergy statistics:

- perception of food allergies are often four times greater than the rates of actual food allergies.
- number of people allergic to foods increasing, but the range of foods that cause an allergic reaction are growing too.
- since 1990, hospital admission for food allergy has seen an increase of 500%.
- allergy and intolerance decrease with increasing age.
- 1.52% of Canadian children are allergic to peanuts compared to 0.83% in the U.S.
- food allergies affect one in every 13 children.
- the number of children with potentially fatal peanut allergies doubled between 1997-2002.

Globalization, especially in the past 25 years, has lead to a large increase in the number of people with allergies and intolerances.

What are food allergies?
- occurs when the immune system mistakenly attacks a food protein.
- ingestion of the offending food may trigger the sudden release of chemicals, including the compound, histamine.
- symptoms include: rash, hives, itching, swelling, difficulty breathing, loss of consciousness, cramps, vomiting, and possible death.

Euro Prevall

- Focused on characterizing the patterns of food allergies across Europe
- Studied infants, children and adults
- Having them fill out survey’s and participate in the EuroPrevall BirthCorhort
- Linked different allergies to different areas of the world including China, Russia and India

Intolerances

- inability to digest a food or a nutrient
- an example is lactose
- the lactase does not get digested or absorbed
- if you are allergic to milk it is the protein
- if you have an intolerance it is the sugar

Food Allergy Vs Food Intolerance

<table>
<thead>
<tr>
<th>Allergy</th>
<th>Intolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obvious symptoms</td>
<td>Subtle symptoms</td>
</tr>
<tr>
<td>Immediate reaction - within one hour</td>
<td>Delayed reaction - 12 to 72 hours</td>
</tr>
<tr>
<td>Rapid onset of symptoms and often reaction magnifies with each exposure</td>
<td>Slow onset and often slow magnification of symptoms, even after the often long delay</td>
</tr>
<tr>
<td>Often triggered by minute amount of food</td>
<td>Not predominantly affected by food quantity</td>
</tr>
<tr>
<td>Affects Immunoglobulin E (IgE)</td>
<td>Affects Immunoglobulin G (IgG) and/or other mechanisms (prostaglandines, histamine, etc)</td>
</tr>
<tr>
<td>Allergies are uncommon</td>
<td>Intolerances are very common</td>
</tr>
<tr>
<td>Generally non-reversible</td>
<td>Reversible</td>
</tr>
<tr>
<td>Well recognised by medicine</td>
<td>Just beginning to be recognised by medicine</td>
</tr>
</tbody>
</table>

Test: prick or RAST (Radio-immunodiffusion Test) or Blood Immunoglobulin G (IgG)
## ARTIFICIAL SWEETENERS

**Common Artificial Sweeteners**

<table>
<thead>
<tr>
<th>Item</th>
<th>Aspartame</th>
<th>Cyclamic acid and its salts</th>
<th>Saccharin and its salts</th>
<th>Acesulfame potassium</th>
<th>Sucralose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate sweetening power compared with that of sucrose</td>
<td>200 times</td>
<td>30 times</td>
<td>300 times</td>
<td>200 times</td>
<td>600 times</td>
</tr>
<tr>
<td>Calorie value (cal/g)</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Uses

- Found in a wide range of food and beverages such as:
  - Soft drinks
  - Gelatin
  - Candies
  - Ice cream
  - Gum
  - Pudding

Several artificial sweeteners are available for use as table-top sweeteners, which consumers add directly to coffee, tea, fruits, breakfast cereal, etc.

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**Possible Health Benefits**
- Do not contribute to tooth decay
- Weight control
- Does not affect blood insulin or glucose levels
- Alternative to sugar, especially for diabetics

**Possible Health Concerns**
- Constantly scrutinized for being linked to cancer
- National Cancer Institute has stated there is not enough evidence to link artificial sweeteners with any serious health problems

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- Previously only used in diabetic products
- Becoming very popular
- Consumers want to eat less sugar but still taste sweetness
- Usually sweeter and less expensive than sucrose based on weight
- Also known as non-nutritive sweeteners because they contain little or no caloric value

Assessed by the World Health Organization Expert Committee on Food Additives or the Food and Drug Administration before being approved for use in foods.

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**No links to serious health problems**
Proteins

Proteins are large chains of amino acids that function as: enzymes, structural tissues, hormones and transport molecules. These macromolecules need to be replenished by the foods that we eat. Proteins from animals are high quality proteins while plant proteins are low quality and healthiest for your body.

Protein & Initiation
- Mixed function oxidase (MFO) is an enzyme that metabolizes many chemicals, including aflatoxin.
- Chemicals enter the cell & MFO transforms them to create safe products but the by-products can be carcinogens that damage the genes of healthy cells.

Stages of Cancer
1. Initiation – the carcinogen is consumed, enters the blood and cells, transforms into its active product and is bonded to the DNA. The cell then divides passing on the active carcinogen.
2. Promotion - the cancerous cells grow and divide forming a tumour. Dietary promoters may promote cancerous growth while anti promoters may slow it down.
3. Progression – the tumour has done extensive damage and leaves the initial site to invade other tissues.

Larger Implications:
Promoting nutrients (like animal protein) are a greater influence on tumour growth than carcinogens themselves. Proteins from animal based foods can promote the development of cancer, while plant based proteins can decrease it.

Animal Protein & Cancer
What is iron? Why is it important?

Iron is an important biological mineral that helps our muscles store and use oxygen. It facilitates the delivery of oxygen to body cells, via red blood cells. Iron is needed to build a strong immune system and a fully developed nervous system.

What is iron deficiency?

Iron deficiency occurs when iron stores are depleted to unhealthy levels. As a result, hemoglobin levels within the blood cannot be maintained, and oxygen is carried to cells inefficiently. Severe cases are referred to as anemia.

Causes

- Blood loss; menstruation, external/internal trauma, blood donation
- Lack of iron uptake
- Inability to adequately absorb iron
- Increased iron need (i.e. athletes, pregnancy)

Symptoms

- Fatigue
- Weakness
- Hair loss
- Brittle nails
- Pale skin
- Fainting
- Dizziness
- Elevated heart rate
- Shortness of breath
- Apathy
- Vulnerability to infection
- Unusual cravings (i.e. ice, soil)

Who is affected?

Iron deficiency is prominent in menstruating women, some menopausal women, vegetarians and vegans. Risk of iron deficiency is high in countries suffering from malnutrition.

Absorption Enhancers

- Fruits: orange juice, grapefruit, etc.
- Vegetables: broccoli, green and red peppers
- White wine

Absorption Inhibitors

- Red wine, coffee, tea
- Spinach, rhubarb
- Whole grain, bran
- Soy-based foods

Treatment

Blood tests measure iron levels. If levels are insufficient, supplements can be taken. Other nutrients can be taken to aid iron absorption (i.e. Vitamin C). Changes in diet to include iron-rich foods can be beneficial.

Iron-rich foods (from highest to lowest bioavailability)

- Red meat
- Tofu
- Beans
- Lentils
- Nuts
- Soybeans, lentils

Fortification

Enhancing highly demanded foods with iron in order to target large iron-deficient populations. Fortification is a practical, affordable and long-term solution, whereas supplements more of a short-term treatment. Although fortification is a sustainable solution, the process is difficult and still developing.
FRE 15

What is the Freshman 15?
- The popular belief widespread through the media that students entering their first year of university will gain approximately 15 lbs.

Does Freshman 15 Exist?
- It is an exaggeration.
- Students on average gain 3.9 lbs in their first year.
- To put this in perspective, young adults gain an average of 2.2 lbs each year.
- Many students lose weight or do not gain any weight.

Gender Differences
Men
- Weight gain associated with:
  - Positive outlook on university transition
  - Alcohol consumption
  - Muscle gain

Women
- Weight gain associated with:
  - Increase workload
  - Positive relationship with parents
  - Drive for thinness or body dissatisfaction
  - Dieting/restrained eating

Factors Affecting Weight Gain
- Adopting roommate habits
- Low physical activity
- Eating junk food
- Living on residence
- Not enough sleep
- Stress
- No parental supervision
Salt in the human diet

Megan Kitts, Patrick Gerrie, and Melissa Hoffman

What is salt?
- Composed of sodium and chloride

What are it’s Functions?
- Controls the volume of fluid in the body
- Important in nerve conduction
- Aids in the passage of nutrients into cells
- Maintains blood volume, pressure and pH of body fluids
- Movement of water between cellular compartments
- Component of hydrochloric acid that is essential to food digestion
- Essential that we ingest it

Negative Health Effects
High salt intake can be linked to the following:
- High blood pressure (hypertension)
- Effects on calcium and bone metabolism
- Increased risk of stomach cancer
- Increased severity of asthma
- Increased risk of stroke
- Increased risk of kidney disease
- Increased risk of cardiac failure
- Suppressed salt taste receptors

Where do we get salt in our diet?

How to Reduce Your Salt Intake
- Choose foods without extra salt added (unsalted popcorn, nuts, pretzels, butter, etc.)
- Choose fresh fruits and vegetables instead of canned
- Cook rice and pasta without adding extra salt
- Use less salt than the recipe calls for
- Add flavour to food alternative ways (herbs, lemon/lime juice, garlic etc.)
- Rinse out canned vegetables to remove some of the salt
- Avoid foods with extremely high sodium content (processed meats and cheeses, canned soups, sauces, broths, condiments, pickled foods)

Recommended Intake

Nutrition Facts

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>860 mg</td>
<td>36 %</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>50 g</td>
<td>18 %</td>
</tr>
<tr>
<td>Fibre</td>
<td>4 g</td>
<td>16 %</td>
</tr>
<tr>
<td>Sugars</td>
<td>6 g</td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>15 g</td>
<td>20 %</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>45 %</td>
<td></td>
</tr>
<tr>
<td>Vitamin C</td>
<td>4 %</td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td>20 %</td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td>20 %</td>
<td></td>
</tr>
</tbody>
</table>

Processed Foods 77%

Added during cooking 5%

Added at the table 6%

Naturally Occurring 12%