



Special Issues In Human Nutrition



Breastfeeding

- How long should a baby be breast fed?



Breastfeeding

- Human milk has a different composition than artificial milk. components — lactose, protein (whey and casein), and fat — are easily digested by a newborn's immature system.

	Breastmilk	Formula
Colostrum	Present in first feeds. Stimulates newborn digestion.	Not present
Antibodies	Present in colostrums in high doses, and subsequent milk.	Not present
Protein	Lower, but more easily digested and absorbed. Human.	Higher, but harder to digest and absorb. Bovine sources.
Carbohydrates	Higher in lactose, linked to brain development.	Lower in lactose. May come from glucose.
Fatty acids	Human fatty acids.	Palm oil or <u>alternatives</u> .
Vitamins and minerals	May be lower, but easier to absorb.	Higher, but harder to absorb.

Benefits

- "Infection-fighting. Antibodies passed from a nursing mother to her baby can help lower the occurrence of many conditions, including:
 - ear infections
 - Diarrhea
 - respiratory infections
 - meningitis

Breastfeeding

- Other factors help to protect a breastfed baby from infection by contributing to the infant's immune system
 - increasing the barriers to infection
 - decreasing the growth of organisms like bacteria and viruses

Breastfeeding

Breastfeeding is particularly beneficial for premature babies and also may protect children against:

- Allergies
- Asthma
- Diabetes
- Obesity
- Sudden infant death syndrome (SIDS)

Breastfeeding

- **Other Benefits**
 - Free
 - Obesity prevention.
 - Smarter babies.
 - "Skin-to-skin" contact enhance the emotional connection between mother and infant.



Breastfeeding

- Beneficial for mom, too.
 - Breastfeeding burns calories
 - Helps shrink the uterus, so nursing moms may lose weight quicker.
 - Helps lower the risk of breast cancer, high blood pressure, diabetes, and cardiovascular disease
 - May help decrease the risk of uterine and ovarian cancer.

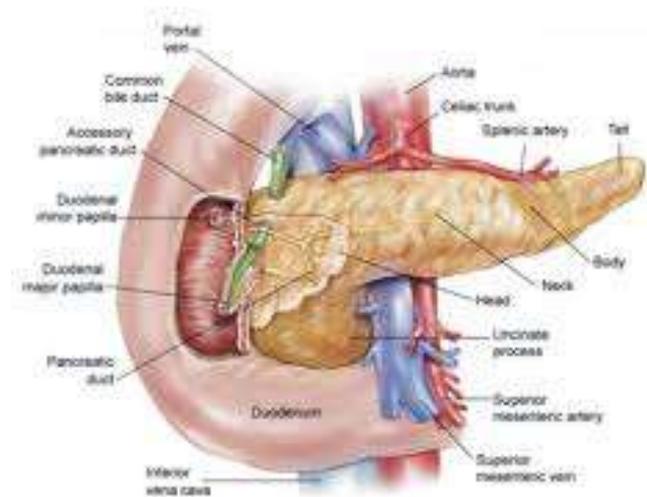
Type II Diabetes

- Type II diabetes) is also known as adult-onset diabetes.
- Receptors on the liver become resistant to insulin leading to complications with blood sugar control.



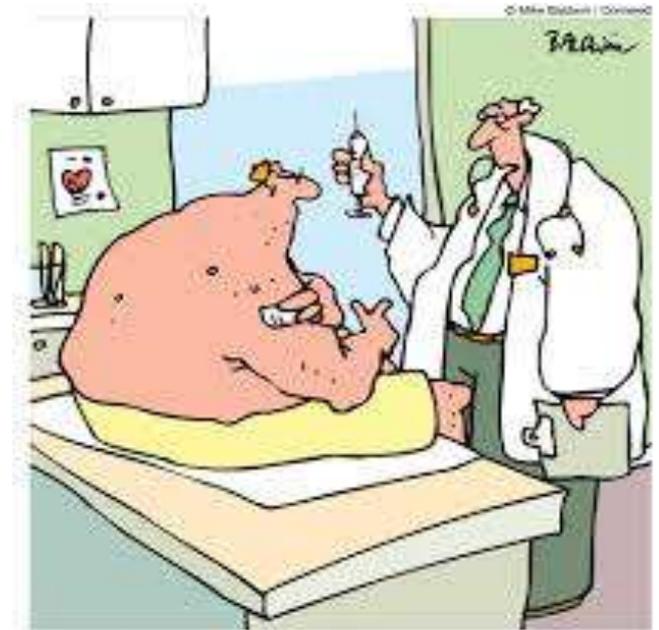
Type II Diabetes

- Causes:
 - The liver receptors 'wear out' or become habituated to insulin because of obesity and constant high-energy foods.



Type II Diabetes

- Causes:
 - There is a very strong link with obesity. As the obesity epidemic increases, the age of adult-onset diabetes is also decreasing.



"It wasn't really insulin. You don't have diabetes yet. It was just a warning shot."

Type II Diabetes

- Causes:
 - Genetics also plays a role.
 - Some people are genetically more susceptible to developing type II diabetes and should use their family history as an indicator and take preventative measures – largely a balanced diet and exercise.

Type II Diabetes

- Symptoms:
 - Glucose in the urine as the kidney is unable to reabsorb all of the glucose back into the blood.
 - Dehydration and excessive urination.
 - Weight loss because insulin is unable to signal fat storage.
 - Sleep loss and tiredness.
 - Blurred vision.



Type II Diabetes

- Therefore a person with type II diabetes should:
 - lose weight and exercise
 - eat smaller & more frequent meals to reduce spikes in blood sugar
 - watch nutritional content of food. Read labels
 - increase fiber in diet
 - Eat low Glycemic Index (GI) foods (slow energy)
 - Diabetic alternative foods

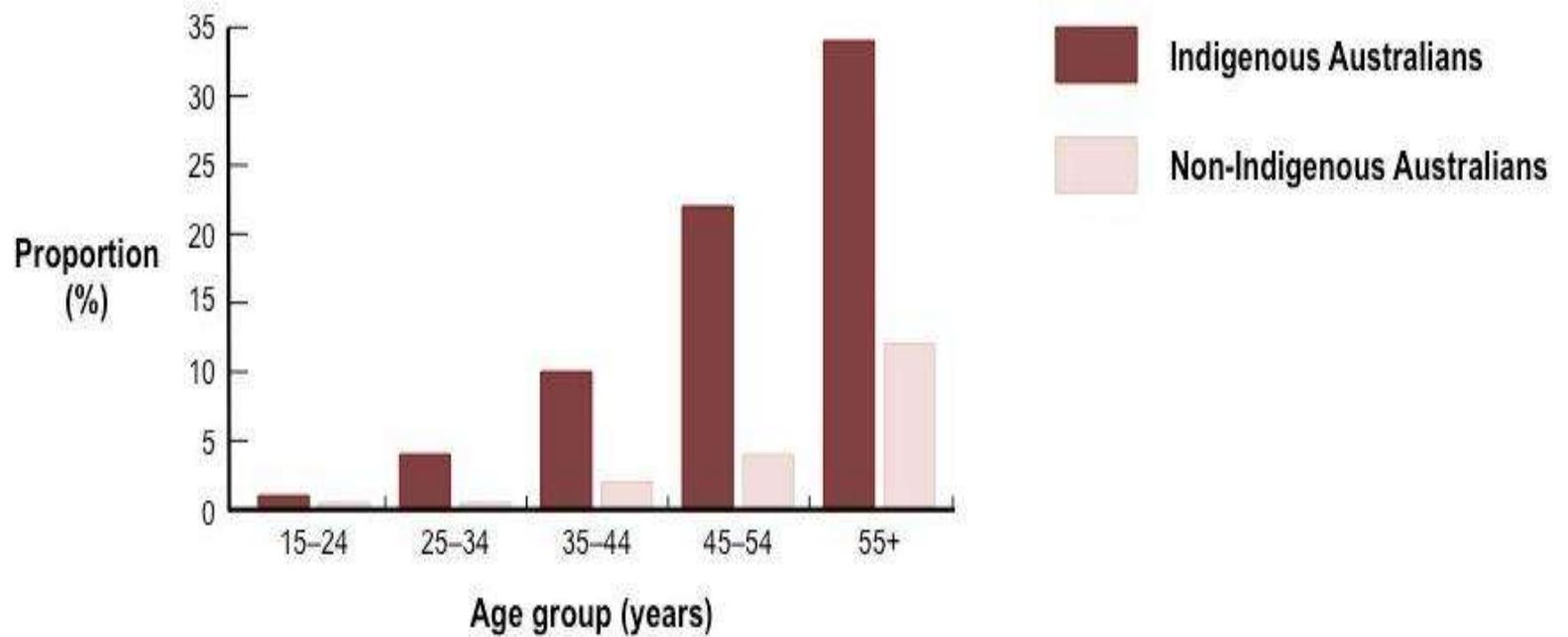


Type II Diabetes

- Incidence of type II diabetes has been found to be higher in populations of Aboriginal Australians than those of non-native descent
- However it is currently unclear whether this is due to genetic factors or social factors (likely a combination of both)



Incidence of Type II Diabetes in the Australian Population



Eating Animal

- What are the ethical issues associated with animal production?
- Is meat an absolute necessity in human diet



Eating Animals

- Killing sentient beings is wrong, especially if it is not necessary for survival
- Raising animals for the sole purpose of slaughter is wrong
- Intensive livestock production is a wasteful industry
- Mass-production industrial farming uses practise which are unnecessarily cruel
- Fishing industry pollutes the ocean and disrupts ecosystems

Arguments For

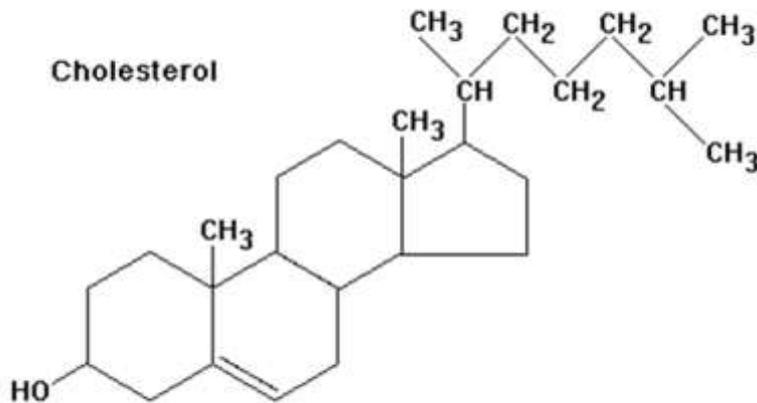
- Farm animals would not exist if not raised for food
- Without the meat production, thousands of jobs would be lost
- Meat and fish can be grown in decent conditions
- Certain nutrients are not available in a vegetarian diet



food	benefits	Disadvantages
Meat & Milk	High source of proteins, vitamins and minerals	<ul style="list-style-type: none">-Animal welfare-Overuse of antibiotics and hormones-High demand for land and water-Greenhouse effect
Fish	Good proteins and fatty acids	<ul style="list-style-type: none">-Biomagnification of mercury and other toxins-Overfishing
Eggs	Source of fat and protein	<ul style="list-style-type: none">-High cholesterol-Inhumane treatment in factory egg farms-Male chicks killed
Honey	Pollination of flowers	<ul style="list-style-type: none">-Farmed bees outcompete natural bees and other insects

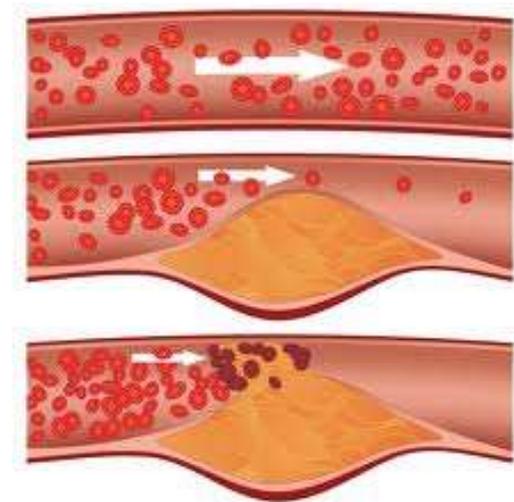
Reducing Cholesterol

- Needed in small amounts to produce
 - Hormones
 - Plasma membrane



Reducing Cholesterol

- Excess amounts results in atherosclerosis (forming fat)
 - Cause clots
 - Increase risk of coronary heart disease
 - Increase risk of high blood pressure



Reducing Cholesterol

- LDL – low density lipoprotein
- HDL – high density lipoprotein



Reducing Cholesterol

- Positive correlation between high levels of cholesterol in blood plasma and an increased risk of coronary heart disease (CHD). However, this is being challenged.



Reducing Cholesterol

- Only LDL is implicated in CHD, but studies focus on total blood cholesterol levels
- Reducing dietary intake of cholesterol often has a very small effect on blood cholesterol levels.
- The liver can synthesize cholesterol

Reducing Cholesterol

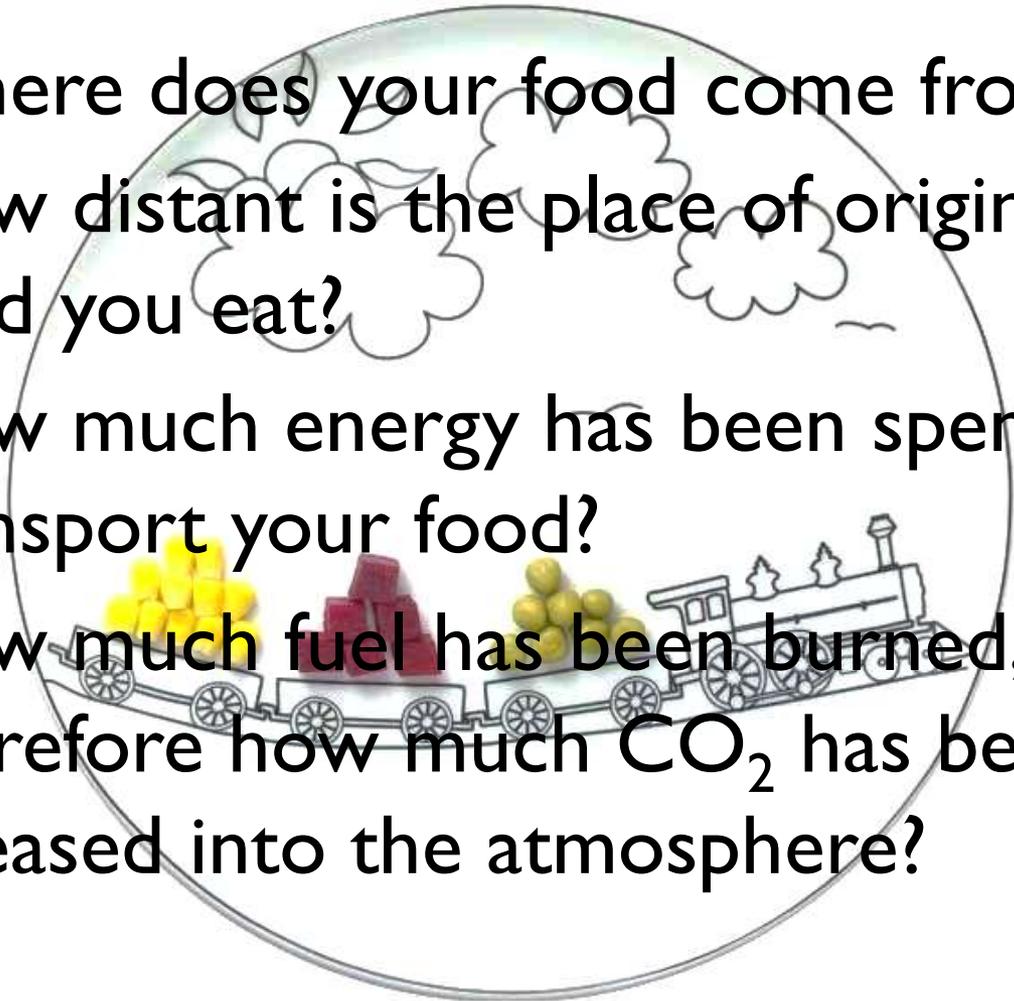
- Genetic factors
 - Some families have high cholesterol levels even with a low dietary intake.

Reducing Cholesterol

- It has been suggested that the link between dietary cholesterol intake and CHD is not logical, and that the more likely cause of CHD is a diet high in saturated fats, that also tend to be high in cholesterol, so there is a correlation without necessarily causation

Food Miles

- Where does your food come from?
- How distant is the place of origin of the food you eat?
- How much energy has been spent to transport your food?
- How much fuel has been burned, and therefore how much CO₂ has been released into the atmosphere?



FOOD MILES:

 TRAINS USE THE EQUIVALENT OF 7 GALS. OF GAS PER TON MOVED 1000 MILES

 TRAINS EMIT ABOUT 132 LBS. OF CARBON PER TON MOVED 1000 MILES



AIRPLANES USE THE EQUIVALENT OF 165 GALS. OF GAS PER TON MOVED PER 1000 MILES

AIRPLANES EMIT ABOUT 4056 LBS. OF CARBON PER TON MOVED 1000 MILES



WHAT ARE THEY?



 BOATS USE THE EQUIVALENT OF 4 GALS. OF GAS PER TON MOVED 1000 MILES

 BOATS EMIT ABOUT 97 LBS. OF CARBON PER TON MOVED 1000 MILES



 TRUCKS USE THE EQUIVALENT OF 30 GALS. OF GAS PER TON MOVED 1000 MILES

 TRUCKS EMIT ABOUT 666 LBS. OF CARBON PER TON MOVED 1000 MILES

This poster indicates roughly how much energy each form of transportation uses and how much carbon dioxide it produces. As any car driver knows, these figures depend a great deal on how the vehicle is driven, the vehicle's condition and technology, and the weather. These are some of our best guesses of industry-wide averages based upon the existing literature.

Food Miles

- Food miles are the measure that the distance that food has traveled from the farm to the table.
- Higher food miles requires more fossil fuels that are used in the shipment of the food.
- It is more sustainable to eat locally grown food



Food Miles

- Advantages
 - Local foods are cheaper and fresher
 - Less wrapping and packaging
 - Boost of local economy and farmers
 - Less imported goods
- Disadvantages
 - Seasonal availability of food
- Reduced food options

Food Miles

- Can consumers affect the environment by the choices they make in buying food?
- Should we consider ethical issues when we buy food, or should we leave it up to government?
- Is it right that buying locally produced food is a form of protectionism, which can harm farmers in the developing world?

Food Miles

- Evaluate the claim that internet shopping and home delivery of food reduce the use of energy in food transport.
- Referring to the precautionary principle, should we wait until more research has been done before changing our pattern of consumption?