- Cancer
- Sleep apnea

Types of fat:

- Saturated- increase cholesterol, causes high blood pressure
- Mono-unsaturated- little effect on of cholesterol
- Poly-unsaturated- decrease of cholesterol levels

Losing weight:

- By cutting back on fat full foods, and exercising, to increase energy used- decreases fat stores
- Also make heart healthier
- Exercising increases muscle mass, which increases metabolic rate

Lack of food:

- Malnourishment due to not enough food
    - Causes slow growth, fatigue, poor resistance to infection, irregular periods (women)
- Caused by civil wars, droughts, pests (destroy crops), also in developing countries
- Lack of mineral ions and vitamins causes deficiency diseases *

Obesity is measured in Body Mass Index=

$$\frac{\text{Weight}}{\text{Height}^2}$$

Cholesterol:

- Fatty substance essential for good health
- Made by the liver
- Found in every cell
- Used for:
    - Cell membranes
    - Waterproofing skin
- Carried by lipoproteins (fat attached to proteins) in the bloo, as it isn't soluble

Lipoproteins

LDL- low density lipoprotein (Bad cholesterol)

- Carries cholesterol from the liver to body cells
- Excess is deposited in vessels – narrowing them

B1.1- PATHOGENS AND DISEASE

Infectious disease- infection/illness that can spread or be transferred to another person

Microorganism - very small living things that cause an infectious disease when in the body. These can be passed from one person to another.

Pathogen- organism that causes a disease- eg; bacteria, virus

Bacteria- single-celled organism

- Reproduce rapidly
- Then they release toxins that make us feel ill
- Can be harmless/useful- in cheese and medicine
- But some can cause disease

Virus- smallest microorganism

- Viruses can only reproduce **inside host cells**, and they damage the cell when they do this.
- A virus can get inside a cell and take over and make of copies of it.
- Eventually the virus copies fill the whole host cell and burst it open. The viruses are then passed out in the bloodstream

Disease symptoms causes by how the body reacts to toxin

- High temp
- Headaches
- Rashes

How pathogens spread:

- Droplet infection (influenza)- infection passed on by droplets in in the air from sneezing/coughing, and someone else breathing it in
- Direct contact (herpes)
- Straight into the bloodstream/ breaking the skin (HIV)
- Via a vector- bug (malaria)
- Contaminated food (salmonella)- undercooked food doesn't kill the bacteria

Semmelweises' work

- He noticed that more women died in childbirth with a doctor, who saw other patients, than with a midwife, who only worked with the women
- Made doctors wash their hand with chloride of lime
- The death rate fell

B1.2- Coordination and Control

Response

Receptors

Any changes (stimuli) that happen to the body are picked up **receptor cells**

These are found in **sense organs**:

- Eyes- receptors are sensitive to light
- Ears- receptors are sensitive to sound, and changes in position for balance
- Nose- receptors are sensitive to chemicals for smell
- Skin- receptors are sensitive to touch, pressure, pain, and temp changes
- Tongue- receptors are sensitive to chemicals for taste

NOTE

Sense- touch
Receptor- skin

The central nervous system (CNS)

NS- brain, spinal cord, nerves

CNS- brain, spinal cord

All out senses are controlled and detected though our NS. This enables humans to react to their surroundings and coordinate their behaviour.

The NS sorts our info from the senses and sends electrical impulses to these muscles and glands which make the appropriate.

Nerves

- A part of the NS
- Made up of 100s/1000s of neurons

What happens next?

- Receptor detects a stimulus (eg- hot pan is a stimulus), then the information is sent as an electrical impulse along sensory **neurons**
- This impulses travels along the neuron until it reaches the CNS
- This signal is then transferred to the relay neurone which sends it to the brain or the motor neurone

Left alone your blood sugars would constantly change, cause health risks

The concentration of glucose in the blood is controlled:

- By hormones in the pancreas- insulin
- So that the cells are supplied with a constant supply of glucose for respiration

Improves value of crops- as more can be made	If all plants are GM to have pesticides, then insects could become resistant
Can be designed to grow in dry, hot or cold climates- help solve world hunger	The GM crops may get out into the natural environment
Can be made to have more nutrients- so places where people lack certain nutrients food can be made to hold specific ones	Will affect the amount of flowers and weeds and insects- reducing biodiversity