Antibiotics and other medicines

Antibiotics treat bacterial infection

- Antibiotics kill bacteria , not viruses
- They work by stopping processes that happen in bacterial cells but not in human cells
- Example is some antibiotics stop bacteria from making cell walls , bacteria cannot divide and they will die
- Human cells don't have cell walls so they are in harmed

Important

- Different antibiotic treat different types of bacteria
- You must use the correct antibiotic for the infection
- Antibiotics do not kill viruses like flu cold measles HIV
- Because virus is reproduce inside your body cells so it's hard to make a drug That Kills the virus without damaging yourself

How new drugs are developed

Discovery of a new drug

Drugs can be discovered in different ways

Example = penicillin

- Alexander Fleming found penicillin by accident
- he saw mould on a petri dish
- around the mould there was no bacteria mold was producing penicillin, which killed bacteria

Modern method

scientist now study diseases and look for molecules that help cure them

Drug development testing

Drug testing has pre-clinical and clinical stages

Pre clinical testing - before human

Lab testing

- Drug is tested on human cells and tissues
- checks if the drug works on the target cell or not

But you cannot test drugs for whole body processes such as blood pressure on cells alone

Testing on live animals

This checks

1. if the drug works
2. how toxic it is
3. the best dosage

Clinical testing on human

Test on healthy volunteers

- Checks for side effects
- make sure the drug is safe when the body is normal

Test to patient

Drug tested on people who have the disease

helps find the optimum dose

- most effective
- fever side effects

Placebo and blind trials

Patients are separated into two groups

- new drug
- placebo, fake pill that does nothing

This remove the placebo effects

When people feel better just because they believe the treatment is working

Blind trial

patient doesn't know which group they are in

double blind trial

- neither patient not doctor no
- Prevents bias

Approval

- After all test, a drug must be approved by medical authorities
- It ensures the drug is effective and safe

Non communicable diseases

- These diseases are not caused by pathogen they cannot spread between people

Examples

- Cardiovascular disease
- Cancer
- Diabetes
- Liver disease
- obesity

Risk factors

- Risk factors are something that increases the chance of getting a disease
- It does not guarantee the disease it only increases the risk

Types of risk factors

- Genetic factors such as. Gender, family history ,age
- Lifestyle factors that are basically changeable and they are smoking, Alcohol, poor diet, lack of exercise

How Lifestyle affects non communicable diseases

Smoking

- increases risk of getting heart attacks, stroke, lung diseases and cancer
- Because smoking damages blood vessels, in Increases blood pressures, causes fatty deposits in arteries, and they can cause blood clots

Diet and malnutrition

- Malnutrition is not having the right amount of nutrients
- Too little nutrients causes deficiency diseases such as Vitamin C deficiency
- Too much nutrients causes the weight gain obesity

Alcohol

too much alcohol causes

- liver disease
- heart problems
- mental health problems

Economic and social effects of non communicable diseases

Local level

- pressure on hospitals

- more money needed for medicines beds and doctors

National level

- NHS becomes expensive
- people may be too sick to work and it affects the economy

Global level

- very common worldwide such as heart disease that is number one cause of death
- developing countries suffer from malnutrition

Measuring obesity

Formula = mass/ height

BMI categories

BMI	Weight status
Below 18.5	Underweight
18.5-24.9	Normal weight
25.0-29.9	Overweight
30.0-34.9	Obesity class I
35.0-39.9	Obesity class II
Above 40	Obesity class III

BMI limitations

- Athletes Mein appear overweight because muscle is heavy
- so BMI is not always accurate

Waist to hip ratio

Waist to hip ratio= Waite circumference/ hip circumference

Cardiovascular disease
What happens

- om inside arteries and it will restrict the blood flow
- Pressure damage is the artery walls and plots are form
- if artery is block
- heart muscle gets nToo much cholesterol leads to fatty deposits fro Oxygen and this leads to heart attack
- brain will get no oxygen at it will stroke

Treatments for CVD
Lifestyle changes first choice

- you should eat a healthy diet
- Exercise, lose fat, lose weight, stop smoking

Medicines

Statins

- They reduce the cholesterol
- lower risk of heart attack and stroke
- side effects and muscle pain liver damage that is rare

Anticoagulants

- Reduce blood clotting
- excessive bleeding if injured

Antihypertensive

- Lower blood pressure
- Side Effects is the headache and painting

Surgical treatments

Stents

- Metal Mesh tube keeps arteries open
- risks are irritation

Coronary bypass surgery

Blood vessel taken from another body part to bypass blockage

Heart transplant

- New Donor heart
- Risk body rejection, lifelong drugs, infection risk and major surgery