

1 | Diseases, an overview

****Disease**** an abnormal condition that causes impairment in/loss of function of an organism (a.k.a. decreased fitness) that is not due to immediate external injury.

1.1 | Causes of Disease

- Infectious agents
- Deficiency disorders
- Heritable factors
- Physiological disorders (immunodeficiency, autoimmune disorders, allergies, etc.)

1.2 | Types of Diseases

1.2.1 | Congenital Disease

Diseases present at birth due to DNA abnormalities / pregnancy pathological issues

1.2.2 | Acquired Disease

Diseases that begin during the lifetime due to exposure to some environmental factors...

- **Microorganism Invasion** => "infectious disease"
- **Autoimmune reaction** => your body fighting your body
- **Nutrient deficiency** => not eating good
- **Mechanical wear** => wear and tear of physical body parts
- **Ingestion of noxious chemicals** => eating poison

An aside...

Infectious diseases actually smaller on the causes of death in the US

- Heart disease => wear + deficiency
- Cancer => heritable + DNA
- Unintentional injuries => not a disease
- Chronic respiratory disease => wear
- Stroke => not a disease
- Alzheimer disease => wear
- Diabetes => autoimmune, nutrient, wear
- Influenza <= **here, finally, an infectious disease.** *

1.3 | Measuring diseases: pathogenicity + virulence

See KBhBIO101PathogenicityandVirulence

1.4 | Disease-causing Agents

- **Protozoan** => single-celled eukaryotes
- **Fungal** => single/multi-celled eukaryotes
- **Bacteria** => single-celled prokaryotes
- **Viral** => acellular parasitic infectious agent
- **Helminthus** => multicellular worms
- **Prions** => acellular misfolded proteins
- **Viroids** => infections nucleic acids w/o protein coat to make virus

1.4.1 | Protozoan

- **Protozoan factors** => direction pathogenesis leading to tissue damage
- **Host-mediated factors** => immune evasion + escape mechanisms + immunosuppression

Adaptable!!

1.4.2 | Fungal

- **Fungal factors** => many shapes and very adaptable, could produce specialized enzymes to take root in body
- **Host-mediated factors** => cause immunocompromise, acquired through inhalation, etc.

1.4.3 | Bacteria

See KBhBIO101BacterialInfections

1.4.4 | Viruses

See KBhBIO101Viruses