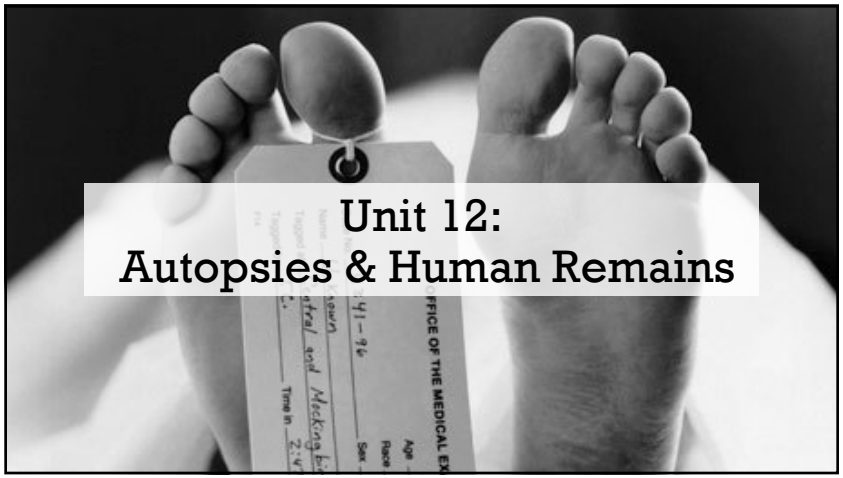
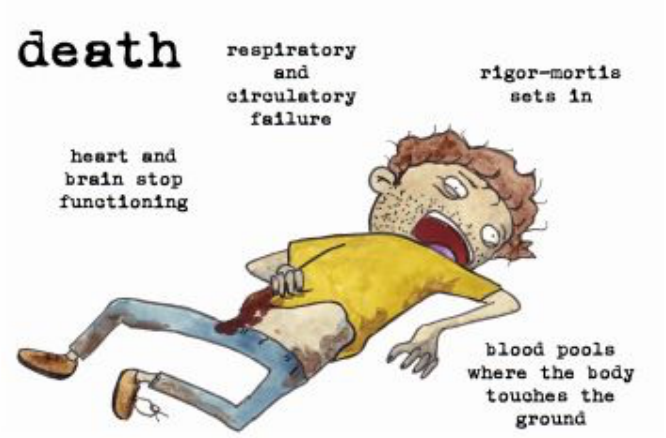




What is Death?

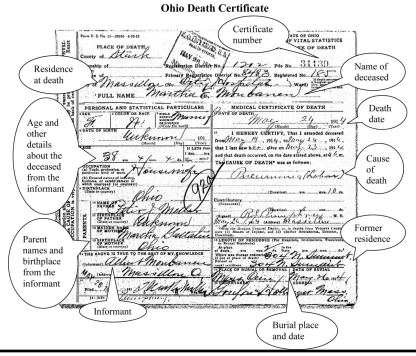
- Death is the **cessation** or **end** of life.
- It is characterized by **irreversible** stopping of blood **circulation** and **brain** activity.
- When the heart stops beating, **oxygen** is deprived from body cells and they begin to die, a process known as **autolysis**

What is an Autopsy?

- In cases of suspicious or unnatural death, a pathologist conducts post-mortem examination, called an **autopsy**
  - Autopsies are conducted to determine the:
    - **manner** of death- means by which they died
    - **cause** of death- the reason they died
    - **mechanism** of death- specific body failure
    - **time** of death

Manner of Death

- Five categories of manner of death can appear on death certificates:
  - Natural
  - Accidental
  - Suicidal
  - Homicidal
  - Undetermined



Cause and Mechanism

- Cause of death (COD) is the reason a person died.
  - Natural causes include disease, cancer, physical injury, stroke, heart attack etc.
  - Homicidal and suicidal causes include shooting, burning, poisoning, hanging, drowning, suffocation, etc.

"He was such a health nut. Died of all natural causes."

Cause and Mechanism

- Proximate cause of death' refers to an underlying cause of death, as opposed to the final cause.
  - For example, if someone is exposed to large amount of radiation then develops cancer, the proximate cause of death is exposure to radiation.
- Mechanism of death describes the specific change in the body that brought about the cessation of life

Mechanism of Death Examples

- If someone has been shot, they may die from loss of blood, called exsanguination (bleeding to death).
- If someone has a heart attack, they may die from cardiac arrest (heart stopping).
- If someone is strangled, they may die from asphyxiation (lack of oxygen)

Time of Death

- During an autopsy, the forensic examiner wants to determine **when** the person died.
- A time of death helps forensic detectives include or **exclude** suspects based on their **alibis** or location at that time

Type of Mortis

- **Livor mortis** - Death color – pooling of blood in tissues after death (lividity)
- **Rigor mortis** - Death Stiffness – stiffening of skeletal muscles after death.
- **Algor mortis** - Death Heat – cooling of body after death.

Livor Mortis

- As body decomposition begins, blood **settles** in the lower parts of the victim's body. Red blood cells break and release **hemoglobin**, which turn **purple** as they spill out of cells. Wherever these **pools** of blood settle, the skin takes on the purple coloring.

Livor Mortis

- The pooling of blood is known as **lividity**
  - Begin **2 hours** after death.
  - Between 2-8 hours after death, the color will disappear when the skin is **pressed** on.
  - After 8 hours, the discoloration becomes **permanent**

Livor Mortis

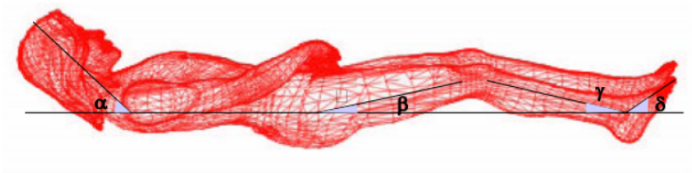
- Livor mortis not only helps approximate time of death, but also indicates the **positioning** of the body during the first 8 hours of death.
  - For example, if all discoloration is on the front of the body, it indicated the person was lying face **down**
  - Discoloration on many parts of the body can show that a body was **moved** from one location/position to another.

Rigor Mortis

- It is caused by lack of oxygen to cells and **calcium** buildup in the **muscles**, causing stiff muscles and joints.
- Rigor mortis begins in the head about **2 hours** after death, and slowly works down the body and legs.
  - Stiffness peaks at about **12** hours.
  - As the cells **dissolve** during autolysis, the stiffness will slowly disappear.
  - Stiffness completely disappears around **36** hours.

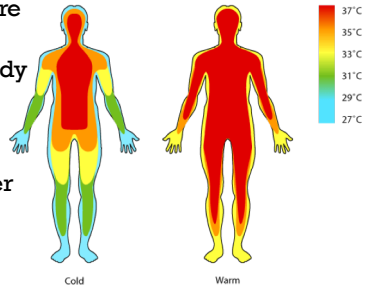
Rigor Mortis

- A dead body that is not stiff has probably been dead less than 2 hours or more than **48** hours



Algor Mortis

- Describes a body's temperature **loss** after death.
- When a person is alive, the body maintains **homeostasis** and regulates a **constant** temperature.
- After death, the body no longer can maintain its heat and it begins to **cool** down.

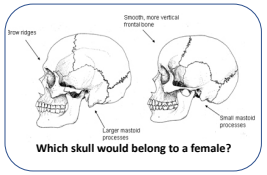


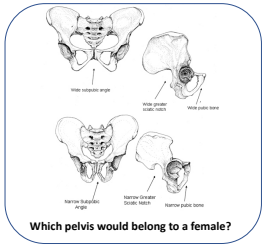
Algor Mortis

- To record the temperature of a corpse, forensic investigators insert a thermometer into the **liver**
- A body cools at a rate of about **1.4** degrees per hour immediately after death, then slows to **0.7** degrees per hour after about 12 hours, until it reaches the **same** temperature as the environment.

Forensic Anthropology

- **Forensic anthropologist** analyze skeletal remains to determine the identity of a victim as well as his/her life history, cause of death, or other clues about a crime.





Forensic Anthropology

- Main Characteristics:
  - **Sex** - Determined by examining the skull, pelvis, humerus, and femur
  - **Age** and **stature** (height/build) – Determined by analyzing the development of the teeth, bone growth, cranial suture lines, and the length of specific bones, such as the femur.
  - **Race** – Determined by analyzing the skull for characteristics that are common among people of different races.