

Death: Meaning, Manner, Mechanism, Cause and Time

I. What does DEATH mean?

Death: There is no single "accepted" definition of death

- irreversible cessation of circulation of blood
- heart stops beating and cannot be restarted
- cessation of brain activity

Death is a _____ rather than an instant event.

Typically, the moment of death is usually considered _____

- First Stage = _____
 - Heart stops beating
 - Cells of body begin to die
 - Body processes fail
 - Nerves, muscles, organs stop working
- Second Stage = _____
 - Cell breakdown
 - Cell membrane dissolves, enzymes and cell contents spill out

In cases of _____ or _____ death, a forensic pathologist conducts an examination on the deceased known as an _____.

II. Manner of Death

The five ways a person can die are:

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____

III. Cause and Mechanism of Death

The reason someone dies is called the _____ of death; disease, injury, stroke, heart attack, shooting, burning, etc

The _____ of death describes the specific change in the body that brought about the cessation of life

Ex: Cause of Death: Shooting

Mechanism of Death: _____

Cause of Death: Heart Attack

Mechanism of Death: _____

IV. Time Of Death

A. Livor Mortis: means _____

- As the body begins to decompose, blood seeps down through the tissues and settles into the lower parts of the body
- red blood cells break down, spilling their contents
- hemoglobin turns _____ when it spills out of the cells

The pooling of blood in the body is known as _____.

Provides a clue as to how long the person has been dead.

- Begins _____ hours after death and becomes permanent after _____
- During this time, if the skin is pressed, the color will _____.
- After this time, the lividity will remain.

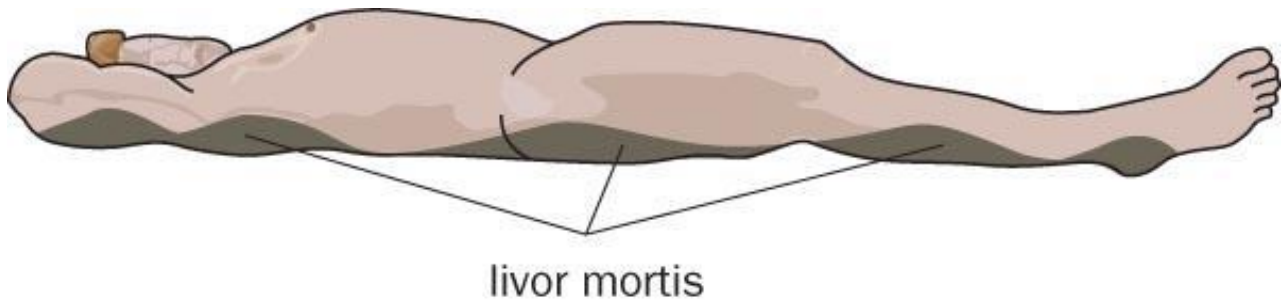
** _____ at which a person dies impacts the time it will take for lividity to set in

- hot day: lividity occurs _____
- cool day: lividity occurs _____

** Can also be affected by anything impeding the flow of blood, such as _____ and _____.

Other Clues:

- 1) _____ of corpse in first eight hours
- 2) Whether or not a person has been _____
 - _____ lividity = a corpse has been moved twice within the first 8 hours of death



B. Rigor Mortis: means _____

- temporary and can be very useful in determining time of death
- stiffness occurs because the _____ muscles are unable to relax and hence remain contracted and hard
- without oxygen, _____ accumulates in these muscles

Starts within _____ hours after death

- starts in the _____ and gradually works its way down to the _____
- after _____ hours, the body is in its most rigid state

The stiffness gradually disappears after _____ hours

- sometimes depending on body weight and temperature, this may last up to _____ hours

Examples:

If a body shows NO visible rigor, the time of death is _____

If a body is extremely rigid, the time of death is _____

If the body exhibits rigor only in face and neck, the time of death is _____

If there is some rigor in the body but a lack of rigor in the face, the time of death is likely _____

Factors that affect rigor mortis

- 1) Ambient temperature (Cold = _____ rigor)
- 2) Weight of the body (obesity = _____ rigor)
- 3) Clothing on body
- 4) Illness at time of death
- 5) Level of _____ activity at time of death
- 6) _____ Exposure

Factors Affecting Rigor	Event	Effect	Circumstances
Temperature	Cold temperature	Inhibits rigor	Slower onset and slower progression of rigor
	Warm temperature	Accelerates rigor	Faster onset and faster progression of rigor
Activity before death	Aerobic exercise	Accelerates rigor	Lack of oxygen to muscle, the build up of lactic acid, and higher body temperature accelerates rigor
	Sleep	Slows rigor	Muscles fully oxygenated will exhibit rigor more slowly
Body weight	Obese	Slows rigor	Fat stores oxygen
	Thin	Accelerates rigor	Body loses oxygen quickly and body heats faster

C. Algor Mortis: means _____

It describes _____ in a corpse

To take a corpse's temperature, a thermometer is inserted into the _____ (standard).

- normal body temperature is _____ (_____)

How fast a corpse loses heat has been measured experimentally:

Approximately one hour after death, the body cools at a rate of _____ per hour

After the first 12 hours, the body loses heat at a rate of _____ per hour until the body reaches the same temperature as its surroundings.

D. Stomach and Intestinal Contents

- In general, it takes _____ to _____ hours for the stomach to empty its contents into the small intestine

- it takes another _____ hours for the food to leave the small intestine

- it takes _____ hours from when a meal was eaten until all the undigested food is released from the large intestine.

E. Changes of the Eye following Death

1) Following death, the eye _____.

2) A _____ is observed within 2-3 hours if eyes were _____ at death and within 24 hours if eyes were _____ at death.

3) The buildup of _____ may also be used to estimate time of death

F. Stages of Decomposition

Within 2 days:

1) Cell _____

2) _____ and _____ staining from blood decomposition

3) Skin takes on a _____ appearance

After 4 days:

1) the skin _____

2) the abdomen _____

Within 6-10 days

1) the corpse _____

2) fluids begin to _____ from body openings

3) the skin _____ off

4) eyeballs and other tissues _____

G. Insects







Insects can provide detailed information about the time of death – this is called forensic _____.

- at a crime scene, the examiner will observe and record data about environmental conditions, including _____, _____ and _____
- also to be collected will insect evidence
 - o within minutes of a death, certain insects will arrive to lay their eggs on the warm body
 - common example = _____

As a corpse progresses through the stages of decomposition, the initial insects will progress through different stages; other insects will begin to arrive

- _____
- _____
- _____
- _____

Blowfly Life Cycle

Stage	Size (mm)	Color	When first appears	Duration in phase	Characteristics	Sketch (not to scale)
Egg	2	white	Soon after death	8 hours	Found in moist, warm areas of body Mouth, eyes, ears, anus	
Larva 1 (Instar 1)	5	white	1.8 days	20 hours	Black mouth hooks visible (anterior) Thin body One spiracle slit near anus	
Larva 2 (Instar 2)	10	white	2.5 days	15–20 hours	Black mouth hooks (anterior) Dark crop seen on anterior dorsal side Actively feeding Two spiracle slits near anus	
Larva 3 (instar 3)	17	white	4–5 days	36–56 hours	Black mouth hooks Crop not visible, covered by fat deposits Fat body Three spiracle slits near anus	
Pre-Pupa	9		8–12 days	86–180 hours	Larva migrates away from body to a dry area	
Early and late Pupa	9	Light brown Changes to dark brown	18–24 days	6–12 days	Immobile, does not feed Changes to dark brown with age Filled air “balloon” to help split open pupa case prior to adult emerging	
Adult	Varies	Black or green	21–24 days	Several weeks	Incapable of flight for first few hours	