

Learning Objectives

- 1 Differentiate *Algor Mortis*, *Rigor Mortis* and *Livor Mortis*
- 2 Illustrate how circumstantial evidence can be useful
- 3 Describe the states of putrefaction
- 4 Explain how forensic entomology can help determine time of death
- 5 Summarize the techniques used for dating old bones

Time of Death

How old is the body?



Reconstruction of events



Biological, chemical and circumstantial evidence

Recent deaths

Body goes limp



Brain stops telling muscles to be tense

Biochemical machinery stops



Body starts to cool

Algor Mortis

Rate of cooling depends on

1 Size of body



Surface area
to volume ratio

Thin and fat



Algor Mortis

Rate of cooling depends on

1 Size of body

2 Location



Open or closed environment



Algor Mortis

Rate of cooling depends on

1 Size of body

2 Location

3 Clothing



Naked or heavily clothed



Algor Mortis

Rate of cooling depends on

1 Size of body

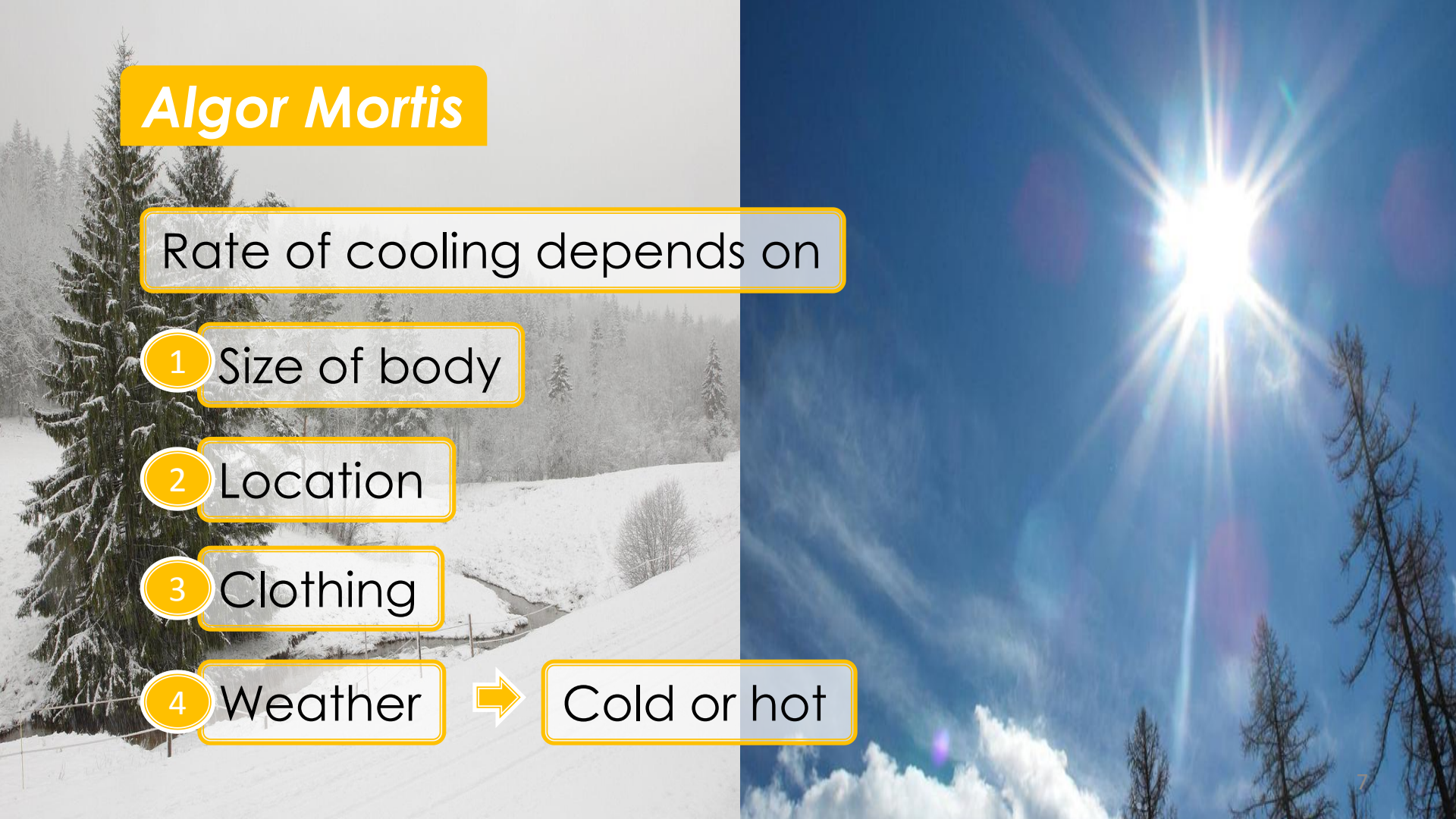
2 Location

3 Clothing

4 Weather



Cold or hot



Algor Mortis

Skin cool after 8 – 12 hours

Different parts cool at different rates



Brain cools faster than liver

General rate



1 – 1.5 °F (5/9 – 5/6 °C) per hour

May warm up after 2 days



Putrefaction

Rigor Mortis

Continual chemical activity



Lactic acid in muscles



Tension

Up to 36 hours after death

DNA

Fingerprints

Fibre Analysis

Poison

Blood

Rigor Mortis

Whole body

10 – 12 hours

Arms

4 – 6 hours

Jaw

2 hours

Legs

8 – 10 hours

**Human
body**

Livor Mortis

Also known as



Post mortem lividity



Hypostasis

0 – 12 hours

Due to gravity

Livor Mortis

Pumping heart moves red blood cells (RBC)

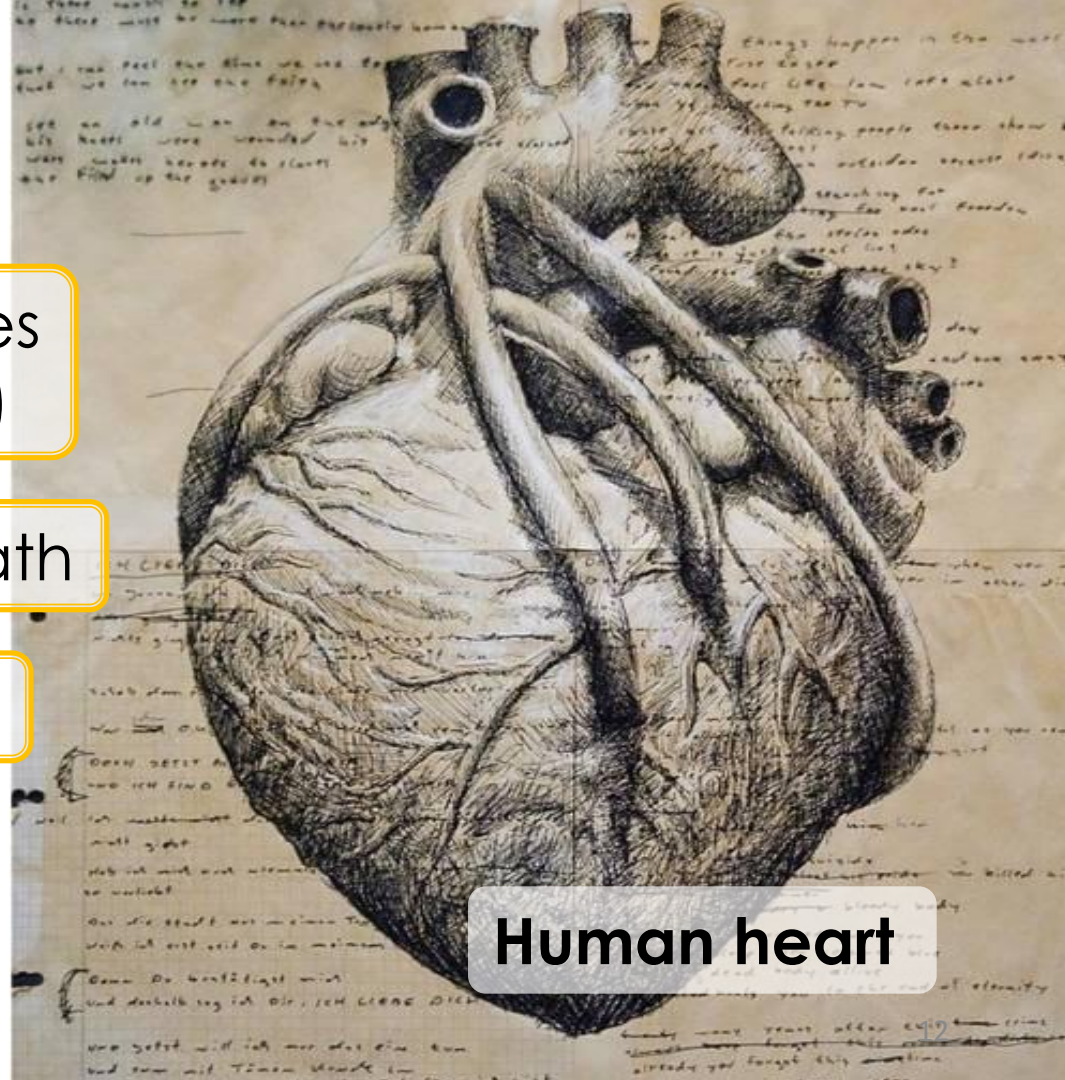
Heart stops after death



Gravitational pull



Discolouration in lower parts



Human heart

Livor Mortis

Body lying on the ground



Red blood cells settle towards the ground



Due to gravity

Other indicators

Ocular potassium



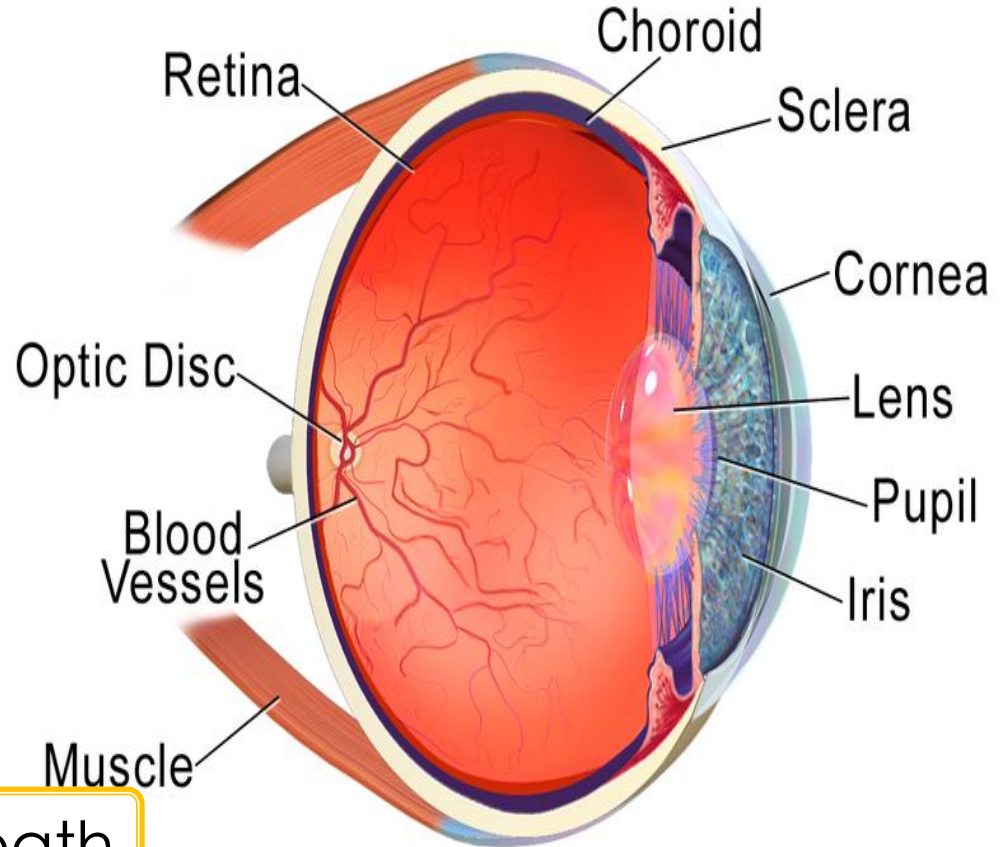
K⁺ levels in the ocular fluid



Concentration differential



Increases after death



Anatomy of the Eye

Other indicators

Circumstantial evidence



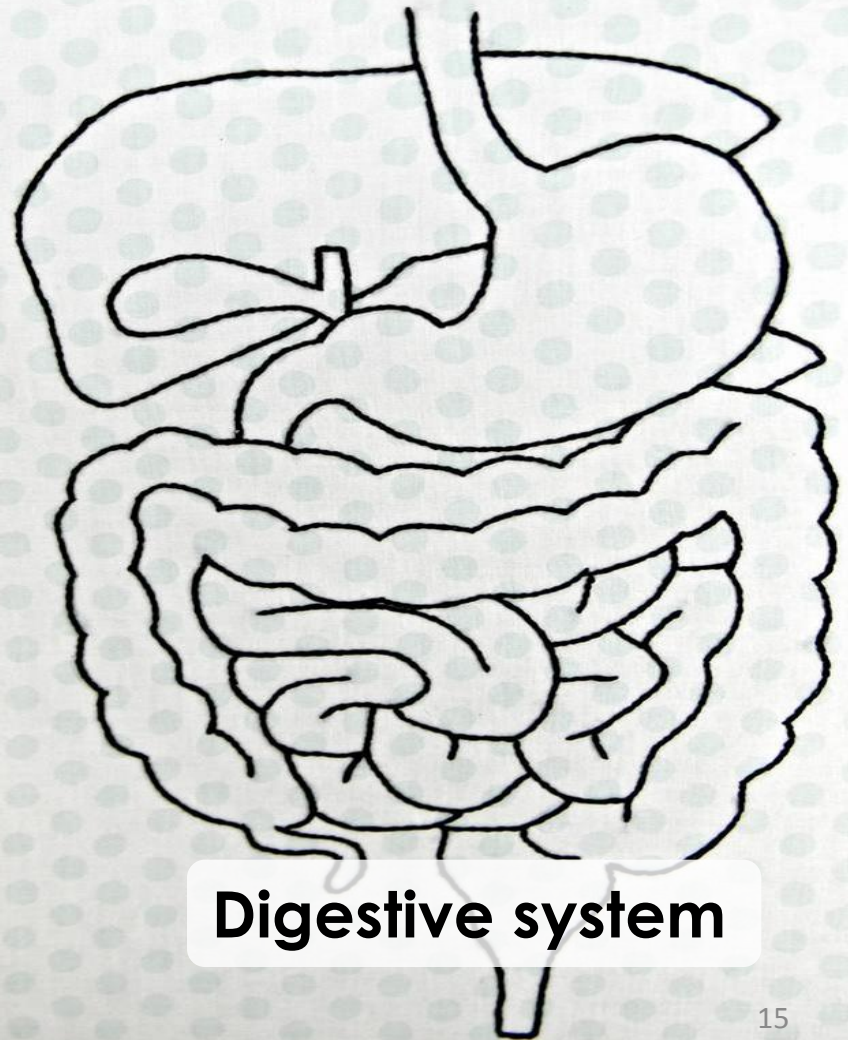
Stomach & small intestine contents



Time of last meal



Stomach empties in 2 hours



Other indicators

Technology



Watches



Watches

Other indicators

Technology



Watches



Mobile phone records



Mobile phones

“Nowadays, last use of the telephone can be terribly important.”

Dr. Nathaniel Cary, testifying in the trial of Steven Wright



Dr. Nathaniel Cary