

## Brain

What animal is this brain from?

**Answer:** A mature, standard-sized horse.

- Pathologists often analyze the brain to diagnose neurologic diseases.



## Enteroliths

Large stone-like objects: One is broken open to reveal its accretion (growth) pattern and the other is sawn in half. These were found in the large intestine of a horse. What are they made of and how did they get there?

**Answer:** These are *enteroliths* (“entero” means intestine, “lith” means stone).

- Layers of minerals form around a small foreign body (a tiny stone, in this example). The process is similar to how pearls are formed in oysters, when a little irritant like a grain of sand invades the oyster’s interior.
- The animal does not EAT the enterolith — it grows in its intestines.
- Amazingly, several stones can form and be present for months or years without causing an obstruction of the intestine.



## Foot specimens, preserved in alcohol

Two horse foot specimens: One shows a normal cross section of a horse hoof and the other is from a horse that has suffered from a serious foot condition. What is the name of the disease that affects the abnormal hoof?

**Answer:** The disease is “laminitis,” also known as “founder.”

- In a normal specimen, the triangular bone within the hoof should be parallel with the hoof wall and sole.
- Laminitis weakens the tissue (lamina) that connects the bone to the hoof, resulting in the bone rotating and sinking to the hoof sole and sometimes protruding through the sole. It is an extremely painful condition.



## Metacarpophalangeal bone plate

Horse bones with stainless steel hardware. What part of the body did these bones come from?

**Answer:** Leg bones – the long bone is a metacarpus and the shorter bone is the first digit bone (“P1”).

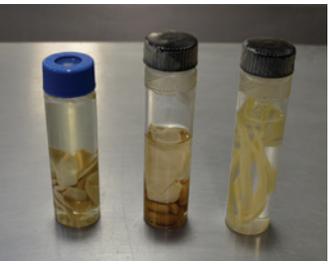
- Stainless steel wires, screws, and a plate bridge the fetlock joint.
- Surgeons removed the joint cartilage and made the joint immobile so that the bones could grow together. This eliminates arthritic pain.



## Metacarpal bones

What animals did these leg bones come from?

**Answer:** A young giraffe and an adult Miniature Horse.



## Parasites

Three common types of parasites found in equine gastrointestinal tracts. What are they? Are they harmful?

**Left:** *Cestodes, Anoplocephala perfoliata*: Attach to the cecum mucosa in the large intestine; common and not a serious threat to the horse, usually causing local irritation.

**Middle:** *Bots, Gasterophilus intestinalis*: Attach to the stomach mucosa; common, but cause no harm other than to disgust the horse owner, since they are actually fly larvae that attach for almost a year.

**Right:** *Ascarid roundworms, Parascaris equorum*: Roundworms found in the small intestines of young horses; common, but potentially deadly because if a heavy load of worms are suddenly killed with dewormer, they can cause an intestinal impaction.



## Radio Frequency Identification Devices

What are RFIDs and which animals use them?

**Left:** Ear “button” for large livestock: When the device is stimulated by an external radio frequency, it emits a unique number, which is read on the handheld scanner.

**Right:** Standard RFID for pets that is placed under the skin: This one came from behind the ear of an alpaca; there are prescribed sites for their injection under the skin.



## Skull, bovine

What species is this skull from?

**Answer:** An adult cow, probably a Holstein.

- > There are no horns because this cow was dehorned as a calf.
- > Ruminants do not have upper incisors, just a dental pad against which lower incisors push to tear and cut grasses that the tongue sweeps into the mouth.



## Skull, with horns

What animal is this skull from?

**Answer:** A goat.

- > A horn is a permanent structure consisting of hoof-like keratin covering a bony core. An antler is bone without keratin cover: once the velvet covering on the antler dies, so does the antler bone.



## Trichobezoars

Several of these were found in a calf’s stomach. What are they made of?

**Answer:** Hair.

- > Like cats, calves ingest hair when grooming. When this habit is excessive, the hair mats together in the stomach, forming a hairball, but it doesn’t hurt the calf.
- > Trichobezoar (“tricho” means hair) is the medically correct term.