



## Imaging modality comparisons

### Pros

### Cons

X-ray

Inexpensive and readily available, radiography is useful for the diagnosis of fractures, bony malformations, advanced neoplasia, significant changes associated with lung and abdominal organ diseases.

Technique is critical for imaging subtle lesions. Can be time consuming. Inadequate for imaging of the brain and spinal cord. Utilizes ionizing radiation. Often requires radiation exposure to personnel when holding animals.

CT

Fast acquisition time usually requiring minimal sedation. Computed Tomography is the modality of choice for bone and lung imaging. Exceptional for evaluating trauma cases, surgical planning, and major organs. Cross-sectional imaging allows for 3D reconstruction and lack of superimposition.

Requires sedation or general anesthesia and pre-anesthetic work up. Utilizes larger doses of ionizing radiation. Provides limited information of the brain and spinal cord. Often requires administration of iodinated contrast agent.

MRI

Magnetic resonance imaging provides exceptional soft-tissue contrast and the ability to image in any plane. Does not use ionizing radiation. Modality of choice for imaging the central nervous system, joints, specific organs, musculature, and other soft tissue structures.

More expensive and time consuming than other modalities. Always requires general anesthesia and a pre-anesthetic work up. Susceptible to artefacts from metallic implants. Metallic foreign bodies may pose a health risk to the patient.

Myelography

Readily available. Good for an overview of the entire spinal column relatively quickly. Accurately identify sites of significant spinal cord compression.

Invasive procedure requiring the use of ionizing radiation. May be difficult to perform on obese dogs. Does not provide information on brain or peripheral nerves.