Vertebral Microradiography MGP_XMV_001

Purpose

To asses bone mineral content and morphology of the femur and vertebrae.

Experimental Design

- **Minimum number of animals :** 1M or 1F
- **Age at test:** Week 16

Equipment

- Faxitron MX20
- Faxitron Software
- Forceps
- Perspex shelf containing image window and the 3 standards
- Tape
- Image J with macros
- Adobe Photoshop

Procedure

1. Set up and calibrate the Faxitron machine.
2. Bones should be arranged the same way for each image ensuring everything is visible and there is no overlap. Ensure that the controls for mineralisation (plastic, aluminium and steel wires) are visible in the image.
    a. The tail should be straight and flat with the dark line running along it facing downwards and the proximal end at the top of the image.
    b. Caudal vertebrae 6 and 7 are to be used in the analysis and must be visible with no overlap.
3. Insert tray to top shelf of the Faxitron machine and image for 25 seconds at 26 kV.
    a. Reimage if positioning is not correct.
4. Analyse image.

Notes

Data analysis

1. Edit soft tissue out of the image.
2. Assess the relative mineral content using ImageJ grey scale histogram obtained from the plastic (grey level 0) and steel (grey level 255) standards.
3. In ImageJ calibrate for distance using an appropriate image.

4. Using the straight line tool in ImageJ measure the height of caudal vertebrae 6 and 7 from centre top to centre bottom and record the average height.

Parameters and Metadata

Vertebral Bone Mineral Content MGP_XMV_001_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Description: vertebral_bone_mineral_content

Vertebral Height MGP_XMV_002_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Unit Measured: mm

Description: vertebral_height

Equipment manufacturer MGP_XMV_003_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** false **Is Annotated:** false

Description: equipment_manufacturer

Equipment model MGP_XMV_004_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** false **Is Annotated:** false

Description: equipment_model