Trabecular Bone MicroCT MGP_MTB_001

Purpose

To assess the trabecular morphology of a femur.

Experimental Design

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

Equipment

- Scanco Medical µ50
- µCT Tomography V6.3-1 software
- Forceps
- 6 mm Cylindrical Acrylic Tube
- 70% Ethanol

Procedure

1. Set up the microCT equipment.
2. Ensure femurs are separated from the tibias.
3. Place femurs into a 6mm cylindrical acrylic tube with distal end downwards and the intercondylar fossa pointing towards you, and fill up with 70 % ethanol.
4. Enter sample information on the machine and insert tubes into the microCT equipment and start scanning.

a. The scan should contain the distal femur epiphysis and at least 250 slices proximal to the distal growth plate.

Notes

Data analysis

1. Use the end point of the growth plate (where the 4 marrow cavities join) as a reference point. The analysis should be performed on a 1 mm section beginning 100 µm proximal to the reference point.
2. Define the trabecular region manually by drawing a circle / oval on the inside surface of the cortical bone area for at least every 20 slices and then contour automatically, correcting manually if needed.
3. Contour automatically for all the other slices correcting manually if it is not accurate

between the drawn slices.
4. Measure the trabecular properties based on the contouring.

Parameters and Metadata

Bone Volume/Tissue Volume (%) MGP_MTB_001_001 | v1.0

simpleParameter

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

Unit Measured: %

Description: bone_volume_tissue_volume

Trabecular Number (mm-1) MGP_MTB_002_001 | v1.0

simpleParameter

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

Unit Measured: mm-1

Description: trabecular_number_mm_1

Trabecular Thickness (mm) MGP_MTB_003_001 | v1.0

simpleParameter

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

Unit Measured: mm

Description: trabecular_thickness_mm

Trabecular Spacing (mm) MGP_MTB_004_001 | v1.0

simpleParameter

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

Unit Measured: mm

Description: trabecular_spacing_mm

Equipment manufacturer MGP_MTB_005_001 | v1.0

procedureMetadata

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

Description: equipment_manufacturer

Equipment model MGP_MTB_006_001 | v1.0

procedureMetadata

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

Description: equipment_model