

X-ray CCP_XRY_001

Purpose

Construct and analyse digital 3D reconstructions of immobilised mice using computed X-ray microtomography (CT).

Experimental Design

- **Minimum number of animals** : 4M + 4F
- **Age at test**: Week 14

Procedure

1. Anesthetize the mouse and monitor for adequate sedation until unconsciousness.
2. Place the mouse on the pad with the forepaws and hindpaws pointing anteriorly, the hindlimbs positioned below the body, and the tail curved along the right side of the mouse. Secure the mouse in position using tape.
3. Scan the mouse.
 1. Correctly position the mouse in the scanner.
 2. Run a scout scan.
 3. Check the scanning parameters and ensure that the scan area includes the entire mouse.
 4. Start the scan.
4. When the scan is complete, remove the mouse from the machine, untape it and check its condition.
5. Place the mouse on a heated mat (38°C) and monitor closely until consciousness is fully regained, before moving it back to its cage.
6. Reconstruct the scan with appropriate software and analyse the image.

Notes

Body composition analysis is conducted using the same CT scan.

Digit integrity IMPC_XRY_031_001 *Definition: The state of being whole and undivided.*

Parameters and Metadata

Number of thoracic vertebrae CCP_XRY_014_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Caudal vertebrae morphology CCP_XRY_074_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: abnormal, imageOnly, normal, unobservable,

XRay Images Skull Dorso Ventral Orientation CCP_XRY_051_001 | v1.2

seriesMediaParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Increments: Minimum 1

Clavicle CCP_XRY_007_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: unobservable, abnormal, imageOnly, normal,

Date Xray equipment last calibrated CCP_XRY_047_001 | v1.3

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Ulna CCP_XRY_023_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: abnormal, unobservable, normal, imageOnly,

Shape of ribs CCP_XRY_010_001 | v1.0

simpleParameter

Req. Analysis: false

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Is Annotated: true

Options: abnormal, unobservable, normal, imageOnly,

Thoracic vertebrae morphology CCP_XRY_071_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: abnormal, imageOnly, unobservable, normal,

Number of lumbar vertebrae CCP_XRY_015_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

XRay Images Hind Leg and Hip CCP_XRY_052_001 | v1.1

seriesMediaParameter

Req. Analysis: false

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Is Annotated: false

Increments: Minimum 1

Lordosis CCP_XRY_058_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: no, imageOnly, unobservable, yes,

Maxilla/Pre-maxilla CCP_XRY_003_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: imageOnly, normal, abnormal, unobservable,

Brachydactyly CCP_XRY_030_001 | v1.1

simpleParameter

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Req. Upload: true

Is Annotated: true

Options: imageOnly, no, unobservable, yes,

Comment on XRay image CCP_XRY_032_001 | v1.1

simpleParameter

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Is Annotated: false

Transitional vertebrae CCP_XRY_060_001 | v1.1

simpleParameter

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Req. Upload: false

Is Annotated: true

Options: yes, imageOnly, no, unobservable,

Teeth CCP_XRY_005_001 | v1.0

simpleParameter

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Is Annotated: true

Options: imageOnly, abnormal, normal, unobservable,

Joints CCP_XRY_027_001 | v1.0

simpleParameter

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Is Annotated: true

Options: imageOnly, unobservable, normal, abnormal,

Xray equipment ID CCP_XRY_036_001 | v1.1

procedureMetadata

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Is Annotated: false

XRay Images Skull Lateral Orientation CCP_XRY_050_001 | v1.2

seriesMediaParameter

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Is Annotated: false

Increments: Minimum 1

Polysyndactylism CCP_XRY_062_001 | v1.1

simpleParameter

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Req. Upload: false

Is Annotated: true

Options: unobservable, imageOnly, yes, no,

XRay Images Forepaw CCP_XRY_049_001 | v1.1

seriesMediaParameter

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Is Annotated: false

Increments: Minimum 1

Voltage settings CCP_XRY_043_001 | v1.1

procedureMetadata

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Is Annotated: false

Number of pelvic vertebrae CCP_XRY_016_001 | v1.0

simpleParameter

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Is Annotated: true

Caudal processes CCP_XRY_067_001 | v1.0

simpleParameter

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Is Annotated: true

Options: abnormal, unobservable, imageOnly, normal,

Lumbar vertebrae morphology CCP_XRY_072_001 | v1.0

simpleParameter

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Is Annotated: true

Options: unobservable, normal, imageOnly, abnormal,

Date Scanner equipment last calibrated CCP_XRY_053_001 | v1.1

procedureMetadata

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Is Annotated: false

XRay Images Whole Body Lateral Orientation CCP_XRY_048_01 | v1.2

seriesMediaParameter

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Is Annotated: false

Increments: Minimum 1

Cervical processes CCP_XRY_063_001 | v1.1

simpleParameter

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Req. Upload: false

Is Annotated: true

Options: unobservable, normal, abnormal, imageOnly,

Scanner equipment model CCP_XRY_046_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

XRay Images Whole Body Dorso Ventral CCP_XRY_034_001 | v1.

3

seriesMediaParameter

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Is Annotated: false

Increments: Minimum 1

Xray equipment model CCP_XRY_038_001 | v1.4

procedureMetadata

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Is Annotated: false

Options: UltraFocus DXA, MX-20-DC12, UltraFocus 100, MS-FX Pro, R_mCT (Micro-CT), MX-20-DC4, MX-20, SkyScan 1176, SkyScan 1278,

Scoliosis CCP_XRY_056_001 | v1.2

simpleParameter

Req. Analysis: false

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Is Annotated: true

Options: imageOnly, yes, no, unobservable,

Humerus CCP_XRY_021_001 | v1.0

simpleParameter

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Is Annotated: true

Options: abnormal, normal, unobservable, imageOnly,

Scanner equipment ID CCP_XRY_044_001 | v1.1

procedureMetadata

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Is Annotated: false

Experimenter ID (analysis) CCP_XRY_042_001 | v1.1

procedureMetadata

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Is Annotated: false

Number of cervical vertebrae CCP_XRY_013_001 | v1.0

simpleParameter

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Is Annotated: true

Alive CCP_XRY_035_001 | v1.0

simpleParameter

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Req. Upload: true

Is Annotated: false

Tibia length CCP_XRY_033_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: mm

Pelvis CCP_XRY_012_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: normal, abnormal, imageOnly, unobservable,

Digit integrity CCP_XRY_031_001 | v1.0

simpleParameter

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Req. Upload: true

Is Annotated: true

Options: unobservable, yes, imageOnly, no,

Free Ontology CCP_XRY_054_001 | v1.0

simpleParameter

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Is Annotated: false

Radius CCP_XRY_022_001 | v1.0

simpleParameter

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Req. Upload: true

Is Annotated: true

Options: normal, unobservable, imageOnly, abnormal,

Skull shape CCP_XRY_001_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: normal, abnormal, imageOnly, unobservable,

Tibia CCP_XRY_025_001 | v1.0

simpleParameter

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Is Annotated: true

Options: imageOnly, unobservable, abnormal, normal,

Cervical vertebrae morphology CCP_XRY_070_001 | v1.0

simpleParameter

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Req. Upload: false

Is Annotated: true

Options: normal, unobservable, imageOnly, abnormal,

Sacral processes CCP_XRY_066_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, unobservable, abnormal, imageOnly,

Fusion of processes CCP_XRY_061_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: unobservable, no, imageOnly, yes,

Kyphosis CCP_XRY_057_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: imageOnly, unobservable, yes, no,

Shape of ribcage CCP_XRY_059_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: abnormal, normal, unobservable, imageOnly,

Fusion of ribs CCP_XRY_011_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: not fused, unobservable, fused, imageOnly,

Rib morphology CCP_XRY_069_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, unobservable, abnormal, imageOnly,

Syndactylism CCP_XRY_029_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: imageOnly, no syndactylism, unobservable, Syndactylism,

Shape of spine CCP_XRY_055_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: imageOnly, unobservable, normal, abnormal,

Pelvic vertebrae morphology CCP_XRY_073_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: imageOnly, unobservable, abnormal, normal,

Number of digits CCP_XRY_028_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Settings time of exposure CCP_XRY_039_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Unit Measured: s

Fibula CCP_XRY_026_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: imageOnly, abnormal, normal, unobservable,

Xray equipment manufacturer CCP_XRY_037_001 | v1.4

procedureMetadata

Req. Analysis: true

Req. Upload: false

Is Annotated: false

Options: Bruker, Faxitron X-Ray Corporation, Rigaku Corporation (Micro-CT),
Faxitron Bioptics LLC,

Mandibles CCP_XRY_004_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: imageOnly, normal, abnormal, unobservable,

Number of ribs right CCP_XRY_008_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Scapulae CCP_XRY_006_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: normal, unobservable, imageOnly, abnormal,

Thoracic processes CCP_XRY_064_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: unobservable, imageOnly, abnormal, normal,

Number of ribs left CCP_XRY_009_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Zygomatic bone CCP_XRY_002_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: abnormal, unobservable, imageOnly, normal,

Settings level CCP_XRY_040_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Femur CCP_XRY_024_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: abnormal, unobservable, normal, imageOnly,

Missing cranial rib CCP_XRY_068_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: Yes, No,

Fusion of vertebrae CCP_XRY_019_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: unobservable, yes, no, imageOnly,

Scanner equipment manufacturer CCP_XRY_045_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Number of caudal vertebrae CCP_XRY_017_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Processes on vertebrae CCP_XRY_020_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: abnormal, unobservable, normal, imageOnly,

Lumbar processes CCP_XRY_065_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: abnormal, unobservable, normal, imageOnly,

Experimenter ID (scan) CCP_XRY_041_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Shape of vertebrae CCP_XRY_018_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: abnormal, normal, unobservable, imageOnly,

Presence of baculum bone CCP_XRY_075_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: yes, no, imageOnly, unobservable,

Quality of enamel on incisors CCP_XRY_076_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: normal, abnormal, imageOnly, unobservable,

Quality of enamel on molars CCP_XRY_077_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: normal, abnormal, imageOnly, unobservable,

Number of forepaw digits CCP_XRY_078_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Number of hindpaw digits CCP_XRY_079_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Total number of teeth CCP_XRY_080_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Tooth formula (left side) CCP_XRY_081_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Tooth formula (right side) CCP_XRY_082_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Defect pixel masking CCP_XRY_083_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Beam hardening correction CCP_XRY_084_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: %

Ring artefact correction CCP_XRY_085_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Smoothing CCP_XRY_086_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Maximum intensity CCP_XRY_087_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Minimum intensity CCP_XRY_088_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Reconstruction software manufacturer CCP_XRY_089_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: Bruker, InstaRecon,

Reconstruction software CCP_XRY_090_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: NRecon, InstaRecon CBR Premium 15K,

Reconstruction software version CCP_XRY_091_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Averaging CCP_XRY_092_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: Yes, No,

180 or 360 degree scan CCP_XRY_093_001 | v1.0

[procedureMetadata](#)

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: degrees

Options: 180, 360,

Rotation step CCP_XRY_094_001 | v1.0

[procedureMetadata](#)

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: degrees

Filter CCP_XRY_095_001 | v1.0

[procedureMetadata](#)

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: No Filter, 0.25mm Al, 0.5mm Al, 1mm Al, Cu+Al, 0.11mm Cu,

Distance between camera and source CCP_XRY_096_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: mm

Distance between object and source CCP_XRY_097_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: mm

Image pixel size CCP_XRY_098_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: pixels

Camera pixel size CCP_XRY_099_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: pixels

Source current CCP_XRY_100_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: uA

Source type CCP_XRY_101_001 | v1.0

procedureMetadata

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Req. Upload: false

Is Annotated: false
