X-ray HRWLLA_XRY_001

Purpose

Construct and analyse digital X-ray images in immobilised mice using a Faxitron X-Ray system or NTB digital X-ray scanner.

Experimental Design

- **Minimum number of animals :** 4M + 4F
- **Age at test:** Week 57

Procedure

Perform steps 3.1 and 3.2 unless the mouse is coming from DEXA analysis

3.1 Anesthetize the mice.

3.2 Monitor the animal carefully until unconsciousness by ensuring the mouse is adequately sedated.

3.3 Mount the anesthetized mouse onto an X-ray permeable plate. Curve the tail along the left side of the mouse. (Note: this will enable identification of the X-ray as a dorsal or ventral image.)

Faxitron X-ray system

3.3.1 Insert the plate into the Faxitron X-ray system.

3.3.2 Take an image using the software that is supplied by the X-ray scanner.

3.3.3 Set the machine to a voltage of 25kV with an integration time of 40ms.

3.3.4 Take an image using the iX-Pect software that is supplied by the X-ray scanner.

NTB digital X-ray scanner

3.4 Remove the mouse once the image is captured. Place the mouse on a heated mat, set at 37°C, in a cage and monitor closely until consciousness is fully regained.

3.5 Analyze the image.

3.6 Or continue with ABR.

Notes

The protocol described herein employs anaesthesia using intraperitoneal (IP) administration; however, anaesthesia using isoflurane is also suitable.

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

Parameters and Metadata

Syndactylism HRWLLA_XRY_029_001 | v1.0

simpleParameter

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

Options: imageOnly, Syndactylism, unobservable, no syndactylism,

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Maxilla/Pre-maxilla HRWLLA_XRY_003_001 | v1.1

simpleParameter

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Options: imageOnly, unobservable, abnormal, normal,

Transitional vertebrae HRWLLA_XRY_060_001 | v1.1

simpleParameter

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Options: no, imageOnly, unobservable, yes,

Voltage settings HRWLLA_XRY_043_001 | v1.1

procedureMetadata

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Lumbar processes HRWLLA_XRY_065_001 | v1.1

simpleParameter

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Options: unobservable, normal, abnormal, imageOnly,

Date Scanner equipment last calibrated HRWLLA_XRY_053_001 | v1.1

procedureMetadata

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Thoracic vertebrae morphology HRWLLA_XRY_071_001 | v1.0

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Options: normal, imageOnly, unobservable, abnormal,

Processes on vertebrae HRWLLA_XRY_020_001 | v1.0

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Options: normal, imageOnly, unobservable, abnormal,

Number of pelvic vertebrae HRWLLA_XRY_016_001 | v1.0

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Shape of ribs HRWLLA_XRY_010_001 | v1.0

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Options: abnormal, imageOnly, normal, unobservable,

Rib morphology HRWLLA_XRY_069_001 | v1.0

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Sacral processes HRWLLA_XRY_066_001 | v1.0

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Kyphosis HRWLLA_XRY_057_001 | v1.1

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Options: unobservable, no, yes, imageOnly,

Shape of ribcage HRWLLA_XRY_059_001 | v1.1

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Scapulae HRWLLA_XRY_006_001 | v1.0

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Options: imageOnly, normal, abnormal, unobservable,

Scanner equipment ID HRWLLA_XRY_044_001 | v1.1

procedureMetadata

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Pelvic vertebrae morphology HRWLLA_XRY_073_001 | v1.0

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Options: unobservable, imageOnly, normal, abnormal,

Number of digits HRWLLA_XRY_028_001 | v1.0

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Scanner equipment manufacturer HRWLLA_XRY_045_001 | v1.1

procedureMetadata

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Femur HRWLLA_XRY_024_001 | v1.0

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Options: imageOnly, normal, unobservable, abnormal,

Skull shape HRWLLA_XRY_001_001 | v1.0

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Options: unobservable, normal, imageOnly, abnormal,

Clavicle HRWLLA_XRY_007_001 | v1.0

simpleParameter

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Options: imageOnly, unobservable, normal, abnormal,

Tibia length HRWLLA_XRY_033_001 | v1.1

simpleParameter

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Unit Measured: mm

Lumbar vertebrae morphology HRWLLA_XRY_072_001 | v1.0

simpleParameter

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Options: abnormal, normal, imageOnly, unobservable,

Shape of vertebrae HRWLLA_XRY_018_001 | v1.0

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Options: imageOnly, unobservable, normal, abnormal,

Tibia HRWLLA_XRY_025_001 | v1.0

simpleParameter

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Options: abnormal, imageOnly, normal, unobservable,

Digit integrity HRWLLA_XRY_031_001 | v1.0

simpleParameter

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Options: no, unobservable, yes, imageOnly,

XRay Images Skull Lateral Orientation HRWLLA_XRY_050_001 | v1.2

seriesMediaParameter

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Increments: Minimum 1

Alive HRWLLA_XRY_035_001 | v1.0

simpleParameter

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

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Humerus HRWLLA_XRY_021_001 | v1.0

simpleParameter

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Options: unobservable, imageOnly, normal, abnormal,

Xray equipment ID HRWLLA_XRY_036_001 | v1.1

procedureMetadata

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Polysyndactylism HRWLLA_XRY_062_001 | v1.1

simpleParameter

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Options: yes, imageOnly, no, unobservable,

Number of thoracic vertebrae HRWLLA_XRY_014_001 | v1.0

simpleParameter

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Settings time of exposure HRWLLA_XRY_039_001 | v1.1

procedureMetadata

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Unit Measured: s

Scoliosis HRWLLA_XRY_056_001 | v1.2

simpleParameter

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

Options: no, unobservable, yes, imageOnly,

Cervical vertebrae morphology HRWLLA_XRY_070_001 | v1.0

simpleParameter

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Options: normal, imageOnly, unobservable, abnormal,

Date Xray equipment last calibrated HRWLLA_XRY_047_001 | v1.3

procedureMetadata

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

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XRay Images Forepaw HRWLLA_XRY_049_001 | v1.1

seriesMediaParameter

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Increments: Minimum 1

Caudal processes HRWLLA_XRY_067_001 | v1.0

simpleParameter

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

Options: unobservable, imageOnly, normal, abnormal,

XRay Images Skull Dorso Ventral Orientation HRWLLA_XRY_051_001 | v1.2

seriesMediaParameter

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Increments: Minimum 1

Ulna HRWLLA_XRY_023_001 | v1.0

simpleParameter

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Options: normal, imageOnly, abnormal, unobservable,

Cervical processes HRWLLA_XRY_063_001 | v1.1

simpleParameter

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Options: unobservable, normal, imageOnly, abnormal,

XRay Images Whole Body Dorso Ventral HRWLLA_XRY_034_001 | v1.3

seriesMediaParameter

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Increments: Minimum 1

Number of cervical vertebrae HRWLLA_XRY_013_001 | v1.0

simpleParameter

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

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Free Ontology HRWLLA_XRY_054_001 | v1.0

simpleParameter

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

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Pelvis HRWLLA_XRY_012_001 | v1.0

simpleParameter

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

Options: abnormal, normal, imageOnly, unobservable,

Number of ribs right HRWLLA_XRY_008_001 | v1.0

simpleParameter

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

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Mandibles HRWLLA_XRY_004_001 | v1.0

simpleParameter

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

Options: abnormal, imageOnly, unobservable, normal,

Number of caudal vertebrae HRWLLA_XRY_017_001 | v1.1

simpleParameter

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

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Fusion of processes HRWLLA_XRY_061_001 | v1.1

simpleParameter

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

Options: no, imageOnly, unobservable, yes,

Brachydactyly HRWLLA_XRY_030_001 | v1.1

simpleParameter

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

Options: unobservable, imageOnly, yes, no,

Xray equipment manufacturer HRWLLA_XRY_037_001 | v1.4

procedureMetadata

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

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

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XRay Images Whole Body Lateral Orientation HRWLLA_XRY_048_001 | v1.2

seriesMediaParameter

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

Increments: Minimum 1

Shape of spine HRWLLA_XRY_055_001 | v1.1

simpleParameter

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

Options: unobservable, imageOnly, normal, abnormal,

XRay Images Hind Leg and Hip HRWLLA_XRY_052_001 | v1.1

seriesMediaParameter

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Increments: Minimum 1

Joints HRWLLA_XRY_027_001 | v1.0

simpleParameter

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

Options: imageOnly, abnormal, normal, unobservable,

Zygomatic bone HRWLLA_XRY_002_001 | v1.0

simpleParameter

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

Options: normal, unobservable, abnormal, imageOnly,

Number of lumbar vertebrae HRWLLA_XRY_015_001 | v1.0

simpleParameter

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Scanner equipment model HRWLLA_XRY_046_001 | v1.1

procedureMetadata

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

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Xray equipment model HRWLLA_XRY_038_001 | v1.4

procedureMetadata

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

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Number of ribs left HRWLLA_XRY_009_001 | v1.0

simpleParameter

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

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Caudal vertebrae morphology HRWLLA_XRY_074_001 | v1.0

simpleParameter

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

Options: imageOnly, abnormal, unobservable, normal,

Fusion of ribs HRWLLA_XRY_011_001 | v1.0

simpleParameter

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

Options: unobservable, fused, imageOnly, not fused,

Missing cranial rib HRWLLA_XRY_068_001 | v1.0

simpleParameter

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Options: Yes, No,

Fibula HRWLLA_XRY_026_001 | v1.0

simpleParameter

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

Options: unobservable, imageOnly, abnormal, normal,

Thoracic processes HRWLLA_XRY_064_001 | v1.1

simpleParameter

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

Options: imageOnly, abnormal, unobservable, normal,

Comment on XRay image HRWLLA_XRY_032_001 | v1.1

simpleParameter

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Teeth HRWLLA_XRY_005_001 | v1.0

simpleParameter

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Options: unobservable, normal, abnormal, imageOnly,

Settings level HRWLLA_XRY_040_001 | v1.1

procedureMetadata

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Radius HRWLLA_XRY_022_001 | v1.0

simpleParameter

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

Options: abnormal, unobservable, imageOnly, normal,

Fusion of vertebrae HRWLLA_XRY_019_001 | v1.0

simpleParameter

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

Options: yes, no, unobservable, imageOnly,

Experimenter ID (scan) HRWLLA_XRY_041_001 | v1.1

procedureMetadata

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

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Lordosis HRWLLA_XRY_058_001 | v1.1

simpleParameter

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

Options: imageOnly, yes, no, unobservable,

Experimenter ID (analysis) HRWLLA_XRY_042_001 | v1.1

procedureMetadata

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

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