Combined SHIRPA and Dysmorphology IMP C_CSD_002

Purpose

SHIRPA and dysmorphology were originally always separate assessments. However they have recently been combined as assessments, so that they take place at the same time.

The purpose of the assessments is to examine mice for obvious physical characteristics, behaviors and morphological abnormalities.

Descriptions include abnormal locomotion/appearance/behavior/reflex reactions.

Experimental Design

- **Minimum number of animals :** 7M + 7F
- **Age at test:** Week 9
- **Sex:** We would expect the results of this test to show sexual dimorphism

Equipment

- Viewing Jar
- SHIRPA arena
- Grid above arena
- Click Box
- Geotaxis grid
- Tube for contact righting
- Photo and/or video camera

Procedure

1. Allow the mice to acclimatise to the phenotyping room for a period of 30 minutes prior to testing.
2. Throughout the test note any vocalisation, aggression, salivation or unexpected behaviours.
3. During this test, note any unexpected dysmorphological characteristics (morphological irregularities are recorded by video sequences or photos).
4. Place the mouse in a clear cylinder over a wire grid and observe for activity and tremors.
5. Transfer the mouse out of the cylinder by removing the metal plate/grid whilst positioning 30cm over an arena and record the transfer arousal.

6. Record the number of $10cm^2$ squares the mouse moves into in the first 30 seconds in the arena (locomotor activity).
7. Allow the mouse to move freely around the arena whilst being observed for gait and tail elevation.
8. Hold the click box approximately 30cm above the arena and press the button, record the response of the mouse.
9. Approach the mouse from the front with a bent finger, aiming to touch the mouse on the back of the neck rather than on the face. Ensure the mouse is looking at the finger before approach is started. Record whether the mouse moves away before the finger touches the mouse, when the finger touches the mouse or if the mouse does not move at all.
10. Pick up the mouse by the tail and observe for limp grasping and trunk curl. Trunk curl must only be recorded if the mouse curls forward without twisting its body, bending to one side is not scored as a trunk curl.
11. Place the mouse in a small transparent tube. Turn the tube quickly so the mouse is fully upside down and record if the mouse rights itself.
12. Record any vocalisation and/or aggression which were observed throughout the entire test

Notes

1. If wiping down with ethanol prior to the use of equipment, make sure no ethanol residue remains as the ethanol may affect the behaviour of the animals.
2. The validity of results obtained from behavioural phenotyping is largely dependent on methods of animal husbandry. It is important that individuals following this procedure are experienced and aware of the animal's welfare, and is familiar with the animal being tested, in order to reduce the anxiety levels of the animal prior to testing.
3. The majority of mouse behavioural studies are age/sex/strain dependent. It is important to keep these parameters comparable throughout a single experiment.
4. Environmental factors may contribute to the levels of anxiety within the mouse. The temperature, humidity, ventilation, noise intensity and light intensity must be maintained at levels appropriate for mice. It is essential that the mice be kept in a uniform environment before and after testing to avoid anomalous results being obtained.
5. It is recommended that all phenotyping experimentation is conducted at approximately the same time of day because physiological and biochemical parameters change throughout the day.
6. When a number of mice are tested continuously, residual odours from the equipment used in the preceding test may affect the test results. The floor and walls of the arena, ruler, and metal net should be wiped clean before introducing the next mouse. To prevent infection, the equipment should be washed with water at the completion of the day's tests. Some specific pathogen-free facilities use ultraviolet irradiation when tests are not being performed. Care needs to be taken, however, to ensure that ultraviolet irradiation does not crack any acrylate equipment covered with residual alcohol.

Parameters and Metadata

Tail - presence IMPC_CSD_001_001 | v1.1

simpleParameter

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

Description: tail_presence

Options: Absent, Present,

Tail - length IMPC_CSD_002_001 | v1.1

simpleParameter

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

Description: tail_length

Options: Long, Short, As expected, No data,

Tail - thickness IMPC_CSD_003_001 | v1.1

simpleParameter

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

Description: tail_thickness

Options: Increased, Decreased, As expected, No data,

Tail - morphology IMPC_CSD_004_001 | v1.1

simpleParameter

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

Description: tail_morphology

Options: As expected, Not as expected, No data,

Coat - color - back IMPC_CSD_005_001 | v1.0

simpleParameter

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

Description: coat_color_back

Options: As expected, Not as expected, No data,

Coat - color - head IMPC_CSD_006_001 | v1.0

simpleParameter

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

Description: coat_color_head

Options: As expected, Not as expected, No data,

Coat - color - abdomen IMPC_CSD_007_001 | v1.0

simpleParameter

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

Description: coat_color_abdomen

Options: As expected, Not as expected, No data,

Coat - color pattern - back IMPC_CSD_008_001 | v1.0

simpleParameter

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

Description: coat_color_pattern_back

Options: As expected, Not as expected, No data,

Coat - color pattern - head IMPC_CSD_009_001 | v1.0

simpleParameter

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

Description: coat_color_pattern_head

Options: As expected, Not as expected, No data,

Coat - color pattern - abdomen IMPC_CSD_010_001 | v1.0

simpleParameter

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

Description: coat_color_pattern_abdomen

Options: As expected, Not as expected, No data,

Coat - hair distribution - back IMPC_CSD_011_001 | v1.0

simpleParameter

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

Description: coat_hair_distribution_back

Options: As expected, Not as expected,

Coat - hair distribution - head IMPC_CSD_012_001 | v1.0

simpleParameter

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

Description: coat_hair_distribution_head

Options: As expected, Not as expected,

Coat - hair distribution - abdomen IMPC_CSD_013_001 | v1.0

simpleParameter

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

Description: coat_hair_distribution_abdomen

Options: As expected, Not as expected,

Coat - hair texture / appearance - back IMPC_CSD_014_001 | v1.0

simpleParameter

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

Description: coat_hair_texture_appearance_back

Options: As expected, Not as expected, No data,

Coat - hair texture / appearance - head IMPC_CSD_015_001 | v1.0

simpleParameter

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

Description: coat_hair_texture_appearance_head

Options: As expected, Not as expected, No data,

Coat - hair texture / appearance - abdomen IMPC_CSD_016_001 | v1.0

simpleParameter

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

Description: coat_hair_texture_appearance_abdomen

Options: As expected, Not as expected, No data,

Forelimbs - position IMPC_CSD_017_001 | v1.0

simpleParameter

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

Description: forelimbs_position

Options: As expected, One forelimb only - not as expected, Both forelimbs - not as expected,

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Forelimbs - shape IMPC_CSD_018_001 | v1.0

simpleParameter

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

Description: forelimbs_shape

Options: As expected, One forelimb only - not as expected, Both forelimbs - not as expected,

Forelimbs - size IMPC_CSD_019_001 | v1.0

simpleParameter

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

Description: forelimbs_size

Options: As expected, One forelimb only - increased, One forelimb only - decreased, Both forelimbs - increased, Both forelimbs - decreased,

---

Hindlimbs - position IMPC_CSD_020_001 | v1.1

simpleParameter

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

Description: hindlimbs_position

Options: As expected, One hindlimb only - not as expected, Both hindlimbs - not as expected,

---

Hindlimbs - shape IMPC_CSD_021_001 | v1.1

simpleParameter

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

Description: hindlimbs_shape

Options: As expected, One hindlimb only - not as expected,

Both hindlimbs - not as expected,

Hindlimbs - size IMPC_CSD_022_001 | v1.1

simpleParameter

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

Description: hindlimbs_size

Options: As expected, One hindlimb only - increased, One hindlimb only - decreased, Both hindlimbs - increased, Both hindlimbs - decreased,

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Vibrissae - presence IMPC_CSD_023_001 | v1.0

simpleParameter

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

Description: vibrissae_presence

Options: As expected, Not as expected,

Vibrissae - appearance IMPC_CSD_024_001 | v1.0

simpleParameter

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

Description: vibrissae_appearance

Options: As expected, Not as expected, No data,

Head size IMPC_CSD_025_001 | v1.0

simpleParameter

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

Description: head_size

Options: As expected, Increased, Decreased,

Head morphology IMPC_CSD_026_001 | v1.0

simpleParameter

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

Description: head_morphology

Options: As expected, Not as expected,

Ears IMPC_CSD_027_001 | v1.0

simpleParameter

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

Description: ears

Options: As expected, Not as expected,

Snout size IMPC_CSD_028_001 | v1.0

simpleParameter

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

Description: snout_size

Options: As expected, Increased, Decreased,

Activity (body position) IMPC_CSD_029_001 | v1.0

simpleParameter

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

Description: activity_body_position_

Options: As expected, Increased activity, Inactive,

Tremor IMPC_CSD_030_001 | v1.0

simpleParameter

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

Description: tremor

Options: Absent, Present,

Transfer arousal IMPC_CSD_031_001 | v1.2

simpleParameter

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

Description: transfer_arousal

Options: As expected, Immediate movement, Extended freeze,

Locomotor activity IMPC_CSD_032_001 | v1.2

simpleParameter

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

Unit Measured: Squares crossed

Description: locomotor_activity

Gait IMPC_CSD_033_001 | v1.0

simpleParameter

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

Description: gait

Options: Fluid movement, Lack of fluidity in movement,

Tail elevation IMPC_CSD_034_001 | v1.2

simpleParameter

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

Description: tail_elevation

Options: As expected, Straub / elevated tail, Dragging, No data,

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Touch escape IMPC_CSD_035_001 | v1.2

simpleParameter

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

Description: touch_escape

Options: No response, Response to touch, Flees prior to touch,

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Startle response IMPC_CSD_036_001 | v1.1

simpleParameter

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

Description: startle_response

Options: None, Present, No data,

Unexpected behaviors IMPC_CSD_037_001 | v1.0

simpleParameter

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

Description: unexpected_behaviors

Options: None, Circling, Jumping, Retropulsion, Other,

Trunk curl IMPC_CSD_038_001 | v1.0

simpleParameter

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

Description: trunk_curl

Options: Absent, Present, No data,

Limb grasp IMPC_CSD_039_001 | v1.0

simpleParameter

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

Description: limb_grasp

Options: Absent, Present, No data,

Forelimb digit - size IMPC_CSD_046_001 | v1.1

simpleParameter

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

Description: forelimb_digit_size

Options: As expected, One forelimb - increased size, One forelimb - decreased size, One forelimb - fused, Both forelimbs - increased size, Both forelimbs - decreased size, Both forelimbs - fused,

---

Hindlimb digit - size IMPC_CSD_047_001 | v1.2

simpleParameter

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

Description: hindlimb_digit_size

Options: As expected, One hindlimb - increased size, One hindlimb - decreased size, One hindlimb - fused, Both hindlimbs - increased size, Both hindlimbs - decreased size, Both hindlimbs - fused,

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Skin color - whole body IMPC_CSD_056_001 | v1.0

simpleParameter

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

Description: skin_color_whole_body

Options: As expected, Not as expected,

Skin color - snout IMPC_CSD_057_001 | v1.0

simpleParameter

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

Description: skin_color_snout

Options: As expected, Not as expected,

Skin color - ear IMPC_CSD_058_001 | v1.0

simpleParameter

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

Description: skin_color_ear

Options: As expected, Not as expected,

Skin color - front paws IMPC_CSD_059_001 | v1.0

simpleParameter

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

Description: skin_color_front_paws

Options: As expected, Not as expected,

Skin color - back paws IMPC_CSD_060_001 | v1.0

simpleParameter

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

Description: skin_color_back_paws

Options: As expected, Not as expected,

Skin color - tail IMPC_CSD_061_001 | v1.0

simpleParameter

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

Description: skin_color_tail

Options: As expected, Not as expected, No data,

Skin texture - whole body IMPC_CSD_062_001 | v1.0

simpleParameter

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

Description: skin_texture_whole_body

Options: As expected, Not as expected,

Skin texture - snout IMPC_CSD_063_001 | v1.0

simpleParameter

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

Description: skin_texture_snout

Options: As expected, Not as expected,

Skin texture - ear IMPC_CSD_064_001 | v1.0

simpleParameter

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

Description: skin_texture_ear

Options: As expected, Not as expected,

Skin texture - front paws IMPC_CSD_065_001 | v1.0

simpleParameter

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

Description: skin_texture_front_paws

Options: As expected, Not as expected,

Skin texture - back paws IMPC_CSD_066_001 | v1.0

simpleParameter

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

Description: skin_texture_back_paws

Options: As expected, Not as expected,

Skin texture - tail IMPC_CSD_067_001 | v1.0

simpleParameter

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

Description: skin_texture_tail

Options: As expected, Not as expected, No data,

Teeth presence IMPC_CSD_068_001 | v1.0

simpleParameter

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

Description: teeth_presence

Options: As expected, Not as expected,

Upper teeth appearance IMPC_CSD_069_001 | v1.0

simpleParameter

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

Description: upper_teeth_appearance

Options: As expected, Not as expected, No data,

Lower teeth appearance IMPC_CSD_070_001 | v1.0

simpleParameter

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

Description: lower_teeth_appearance

Options: As expected, Not as expected, No data,

Genitalia - presence IMPC_CSD_071_001 | v1.1

simpleParameter

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

Description: genitalia_presence

Options: As expected, Absent,

Genitalia - size IMPC_CSD_072_001 | v1.1

simpleParameter

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

Description: genitalia_size

Options: As expected, Not as expected, No data,

Genitalia - morphology IMPC_CSD_073_001 | v1.1

simpleParameter

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

Description: genitalia_morphology

Options: As expected, Not as expected, No data,

Mouth morphology IMPC_CSD_074_001 | v1.0

simpleParameter

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

Description: mouth_morphology

Options: As expected, Not as expected,

Upper lip morphology IMPC_CSD_075_001 | v1.0

simpleParameter

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

Description: upper_lip_morphology

Options: As expected, Not as expected,

Lower lip morphology IMPC_CSD_076_001 | v1.0

simpleParameter

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

Description: lower_lip_morphology

Options: As expected, Not as expected,

Contact righting IMPC_CSD_077_001 | v1.0

simpleParameter

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

Description: contact_righting

Options: Present, Absent, No data,

Vocalization IMPC_CSD_078_001 | v1.0

simpleParameter

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

Description: vocalization

Options: As expected, Not as expected,

Aggression IMPC_CSD_079_001 | v1.0

simpleParameter

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

Description: aggression

Options: As expected, Excessive aggression,

Head bobbing IMPC_CSD_080_001 | v1.0

simpleParameter

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

Description: head_bobbing

Options: Present, Absent,

Experimenter ID IMPC_CSD_081_001 | v1.0

procedureMetadata

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

---

Location of test IMPC_CSD_082_001 | v1.1

procedureMetadata

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

Description: location_of_test

Options: Open bench, LAF cabinet,

Number of animals in cage IMPC_CSD_083_001 | v1.2

procedureMetadata

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

Description: number_of_animals

Number of days since cage changed IMPC_CSD_084_001 | v1.1

procedureMetadata

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

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Images IMPC_CSD_085_001 | v1.1

seriesMediaParameter

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

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Size of squares in arena IMPC_CSD_086_001 | v1.0

procedureMetadata

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

Unit Measured: cm^2

Comments (in English) IMPC_CSD_087_001 | v1.2

simpleParameter

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

Description: General comments, in English

Forepaw - size IMPC_CSD_040_002 | v2.0

simpleParameter

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

Description: forepaw_size

Options: As expected, One forepaw - decreased, Both forepaws - increased, Both forepaws - decreased, One forepaw - increased,

---

Hindpaw - size IMPC_CSD_041_002 | v2.0

simpleParameter

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

Description: hindpaw_size

Options: As expected, One hindpaw - increased, One hindpaw - decreased, Both hindpaws - increased, Both hindpaws - decreased,

---

Forepaw - shape IMPC_CSD_042_002 | v2.0

simpleParameter

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

Description: forepaw_shape

Options: As expected, One forepaw - not as expected, Both forepaws - not as expected,

---

Hindpaw - shape IMPC_CSD_043_002 | v2.0

simpleParameter

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

Description: hindpaw_shape

Options: As expected, One hindpaw - not as expected, Both hindpaws - not as expected,

---

Forelimb digit - number IMPC_CSD_044_002 | v2.0

simpleParameter

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

Description: forelimb_digit_number

Options: As expected, One forelimb - increased number, One forelimb - decreased number, Both forelimbs - increased number, Both forelimbs - decreased number,

---

Hindlimb digit - number IMPC_CSD_045_002 | v2.0

simpleParameter

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

Description: hindlimb_digit_number

Options: As expected, One hindlimb - increased number, One hindlimb - decreased number, Both hindlimbs - increased number, Both hindlimbs - decreased number,

---

Forelimb digit - shape IMPC_CSD_048_002 | v2.0

simpleParameter

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

Description: forelimb_digit_shape

Options: As expected, One forelimb - not as expected, Both forelimbs - not as expected,

---

Hindlimb digit - shape IMPC_CSD_049_002 | v2.0

simpleParameter

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

Description: hindlimb_digit_shape

Options: As expected, One hindlimb - not as expected, Both hindlimbs - not as expected,

---

Forelimb nail - number IMPC_CSD_050_002 | v2.0

simpleParameter

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

Description: forelimb_nail_number

Options: As expected, One forelimb - increased number, One forelimb - decreased number, Both forelimbs - increased number, Both forelimbs - decreased number, No data,

---

Hindlimb nail - number IMPC_CSD_051_002 | v2.0

simpleParameter

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

Description: hindlimb_nail_number

Options: As expected, One hindlimb - increased number, One hindlimb - decreased number, Both hindlimbs - increased number, Both hindlimbs - decreased number, No data,

---

Hindlimb nail - length IMPC_CSD_053_002 | v2.0

simpleParameter

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

Description: hindlimb_nail_length

Options: As expected, One hindlimb - increased length, One hindlimb - decreased length, Both hindlimbs - increased length, Both hindlimbs - decreased length, No data,

---

Forelimb nail - length IMPC_CSD_052_002 | v2.0

simpleParameter

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

Description: forelimb_nail_length

Options: As expected, One forelimb - increased length, One forelimb - decreased length, Both forelimbs - increased length, Both forelimbs - decreased length, No data,

---

Forelimb nail - shape IMPC_CSD_054_002 | v2.0

simpleParameter

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

Description: forelimb_nail_shape

Options: As expected, One forelimb - not as expected, Both forelimbs - not as expected, No data,

---

Hindlimb nail - shape IMPC_CSD_055_002 | v2.0

simpleParameter

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

Description: hindlimb_nail_shape

Options: As expected, One hindlimb - not as expected, Both hindlimbs - not as expected, No data,

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