Combined SHIRPA and Dysmorphology HR
WLLA_CSD_003

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 52
- **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. 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.
10. 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.
11. 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

Skin color - back paws HRWLLA_CSD_060_001 | v1.0

simpleParameter

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

Options: Not as expected, As expected,

Forelimbs - size HRWLLA_CSD_019_001 | v1.0

simpleParameter

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

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

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Skin texture - whole body HRWLLA_CSD_062_001 | v1.0

simpleParameter

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

Options: As expected, Not as expected,

Coat - color - back HRWLLA_CSD_005_001 | v1.0

simpleParameter

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

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

Hindlimb nail - length HRWLLA_CSD_053_002 | v2.0

simpleParameter

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

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

Snout size HRWLLA_CSD_028_001 | v1.0

simpleParameter

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

Options: Decreased, As expected, Increased,

Experimenter ID HRWLLA_CSD_081_001 | v1.0

procedureMetadata

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

Lower teeth appearance HRWLLA_CSD_070_001 | v1.0

simpleParameter

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

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

Tremor HRWLLA_CSD_030_001 | v1.0

simpleParameter

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

Options: Present, Absent,

Locomotor activity HRWLLA_CSD_032_001 | v1.2

simpleParameter

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

Unit Measured: Squares crossed

Vibrissae - appearance HRWLLA_CSD_024_001 | v1.0

simpleParameter

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

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

Trunk curl HRWLLA_CSD_038_001 | v1.0

simpleParameter

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

Options: No data, Absent, Present,

Head bobbing HRWLLA_CSD_080_001 | v1.0

simpleParameter

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

Options: Present, Absent,

Tail - length HRWLLA_CSD_002_001 | v1.1

simpleParameter

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

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

Transfer arousal HRWLLA_CSD_031_001 | v1.2
simpleParameter

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

Options: As expected, Extended freeze, Immediate movement,

Images HRWLLA_CSD_085_001 | v1.1
seriesMediaParameter

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

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Tail elevation HRWLLA_CSD_034_001 | v1.2
simpleParameter

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

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

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Skin texture - snout HRWLLA_CSD_063_001 | v1.0
simpleParameter

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

Options: As expected, Not as expected,

Genitalia - size HRWLLA_CSD_072_001 | v1.1

simpleParameter

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

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

Number of days since cage changed HRWLLA_CSD_084_001 | v1.1

procedureMetadata

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

Hindlimb nail - shape HRWLLA_CSD_055_002 | v2.0

simpleParameter

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

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

Forelimb digit - number HRWLLA_CSD_044_002 | v2.0

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

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

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Coat - hair texture / appearance - abdomen HRWLLA_CSD_016_ 001 | v1.0

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

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

Vibrissae - presence HRWLLA_CSD_023_001 | v1.0

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

Options: As expected, Not as expected,

Hindpaw - size HRWLLA_CSD_041_002 | v2.0

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

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

Hindlimb nail - number HRWLLA_CSD_051_002 | v2.0
simpleParameter

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

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

Coat - hair distribution - abdomen HRWLLA_CSD_013_001 | v1.0
simpleParameter

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

Options: Not as expected, As expected,

Mouth morphology HRWLLA_CSD_074_001 | v1.0
simpleParameter

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

Options: Not as expected, As expected,

Number of animals in cage HRWLLA_CSD_083_001 | v1.2

procedureMetadata

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

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Hindlimbs - size HRWLLA_CSD_022_001 | v1.1

simpleParameter

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

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

Gait HRWLLA_CSD_033_001 | v1.0

simpleParameter

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

Options: Fluid movement, Lack of fluidity in movement,

Genitalia - morphology HRWLLA_CSD_073_001 | v1.1

simpleParameter

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

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

Forelimb nail - number HRWLLA_CSD_050_002 | v2.0

simpleParameter

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

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

Unexpected behaviors HRWLLA_CSD_037_001 | v1.0

simpleParameter

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

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

Skin color - front paws HRWLLA_CSD_059_001 | v1.0

simpleParameter

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

Options: As expected, Not as expected,

Teeth presence HRWLLA_CSD_068_001 | v1.0
simpleParameter

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

Options: Not as expected, As expected,

Skin texture - tail HRWLLA_CSD_067_001 | v1.0
simpleParameter

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

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

Hindlimb digit - number HRWLLA_CSD_045_002 | v2.0
simpleParameter

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

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

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Coat - hair texture / appearance - back HRWLLA_CSD_014_001 | v1.0

simpleParameter

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

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

Hindlimb digit - size HRWLLA_CSD_047_001 | v1.2

simpleParameter

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

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

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Coat - color pattern - back HRWLLA_CSD_008_001 | v1.0

simpleParameter

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

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

Coat - hair texture / appearance - head HRWLLA_CSD_015_001 | v1.0

simpleParameter

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

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

Upper teeth appearance HRWLLA_CSD_069_001 | v1.0

simpleParameter

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

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

Coat - color - abdomen HRWLLA_CSD_007_001 | v1.0

simpleParameter

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

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

Location of test HRWLLA_CSD_082_001 | v1.1

procedureMetadata

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

Options: LAF cabinet, Open bench,

Head size HRWLLA_CSD_025_001 | v1.0

simpleParameter

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

Options: As expected, Decreased, Increased,

Forepaw - shape HRWLLA_CSD_042_002 | v2.0

simpleParameter

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

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

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Startle response HRWLLA_CSD_036_001 | v1.1

simpleParameter

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

Options: No data, None, Present,

Coat - color - head HRWLLA_CSD_006_001 | v1.0
simpleParameter

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

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

Vocalization HRWLLA_CSD_078_001 | v1.0
simpleParameter

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

Options: As expected, Not as expected,

Skin color - snout HRWLLA_CSD_057_001 | v1.0
simpleParameter

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

Options: Not as expected, As expected,

Forelimbs - position HRWLLA_CSD_017_001 | v1.0

simpleParameter

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

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

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Forelimbs - shape HRWLLA_CSD_018_001 | v1.0

simpleParameter

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

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

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Skin color - tail HRWLLA_CSD_061_001 | v1.0

simpleParameter

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

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

Ears HRWLLA_CSD_027_001 | v1.0

simpleParameter

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

Options: Not as expected, As expected,

Genitalia - presence HRWLLA_CSD_071_001 | v1.1

simpleParameter

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

Options: Absent, As expected,

Hindlimbs - shape HRWLLA_CSD_021_001 | v1.1

simpleParameter

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

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

Tail - morphology HRWLLA_CSD_004_001 | v1.1

simpleParameter

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

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

Tail - thickness HRWLLA_CSD_003_001 | v1.1
simpleParameter

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

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

Coat - hair distribution - back HRWLLA_CSD_011_001 | v1.0
simpleParameter

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

Options: Not as expected, As expected,

Skin texture - back paws HRWLLA_CSD_066_001 | v1.0
simpleParameter

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

Options: As expected, Not as expected,

Skin color - whole body HRWLLA_CSD_056_001 | v1.0

simpleParameter

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

Options: Not as expected, As expected,

Head morphology HRWLLA_CSD_026_001 | v1.0

simpleParameter

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

Options: As expected, Not as expected,

Hindpaw - shape HRWLLA_CSD_043_002 | v2.0

simpleParameter

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

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

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Comments (in English) HRWLLA_CSD_087_001 | v1.2

simpleParameter

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

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Activity (body position) HRWLLA_CSD_029_001 | v1.0

simpleParameter

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

Options: Inactive, As expected, Increased activity,

Aggression HRWLLA_CSD_079_001 | v1.0

simpleParameter

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

Options: As expected, Excessive aggression,

Tail - presence HRWLLA_CSD_001_001 | v1.1

simpleParameter

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

Options: Present, Absent,

Upper lip morphology HRWLLA_CSD_075_001 | v1.0

simpleParameter

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

Options: Not as expected, As expected,

Forepaw - size HRWLLA_CSD_040_002 | v2.0

simpleParameter

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

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

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Coat - hair distribution - head HRWLLA_CSD_012_001 | v1.0

simpleParameter

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

Options: Not as expected, As expected,

Skin texture - front paws HRWLLA_CSD_065_001 | v1.0

simpleParameter

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

Options: As expected, Not as expected,

Size of squares in arena HRWLLA_CSD_086_001 | v1.0

procedureMetadata

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

Unit Measured: cm^2

Skin color - ear HRWLLA_CSD_058_001 | v1.0

simpleParameter

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

Options: Not as expected, As expected,

Forelimb nail - shape HRWLLA_CSD_054_002 | v2.0

simpleParameter

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

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

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Lower lip morphology HRWLLA_CSD_076_001 | v1.0

simpleParameter

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

Options: Not as expected, As expected,

Forelimb digit - size HRWLLA_CSD_046_001 | v1.1

simpleParameter

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

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

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Hindlimb digit - shape HRWLLA_CSD_049_002 | v2.0

simpleParameter

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

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

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Coat - color pattern - head HRWLLA_CSD_009_001 | v1.0
simpleParameter

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

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

Skin texture - ear HRWLLA_CSD_064_001 | v1.0
simpleParameter

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

Options: Not as expected, As expected,

Limb grasp HRWLLA_CSD_039_001 | v1.0
simpleParameter

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

Options: Present, Absent, No data,

Forelimb digit - shape HRWLLA_CSD_048_002 | v2.0

simpleParameter

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

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

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Hindlimbs - position HRWLLA_CSD_020_001 | v1.1

simpleParameter

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

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

Forelimb nail - length HRWLLA_CSD_052_002 | v2.0

simpleParameter

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

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

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Contact righting HRWLLA_CSD_077_001 | v1.0

simpleParameter

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

Options: No data, Present, Absent,

Coat - color pattern - abdomen HRWLLA_CSD_010_001 | v1.0

simpleParameter

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

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