# Open Field ICSLA_OFD_001

## Purpose

The Open Field test is used to assess anxiety and exploratory behaviors. It is based on the natural tendency of an animal to explore and to protect itself using avoidance which translates to a normal animal spending more time in the periphery of the Open Field arena than in the center (the most anxiogenic area).

## Experimental Design

- **Minimum number of animals :**  7M + 7F
- **Age at test:** Week 51
- **Sex:** We would expect the results of this test to show sexual dimorphism

## Procedure

1. Animals are transported to the testing room (or ideally an antechamber) and left undisturbed for 30 minutes before the test.
2. Ensure that lighting conditions are as desired (150-200 lux) and that all equipment is working correctly:

   1. If using a beam break system, ensure that beams are not interrupted before putting the mouse and if measuring vertical activity (rears), check that height of the infrared frame for rears is correctly set.
   2. If using a videotracking system, set detection parameters appropriate for the coat color of the mice.
   3. For analysis, each openfield arena is divided into a peripheral zone measuring 8 cm from the edge of the arena walls, and a central zone around 40% of the total surface of the arena.

3. Testing is conducted during the light phase of the cycle with 1 hour gap from the light/dark change. Testing should be conducted during the same period of day.
4. Wipe the apparatus clean and allow time for it to dry
5. Each mouse is placed in the middle of a peripheral zone of the arena facing the wall and allowed to explore freely the apparatus, with the experimenter out of the animal's sight.

*If more than one mouse can be tested in parallel, in adjacent open field arenas and mice are video-tracked, it is important to ensure that the tracking of each mouse starts as soon as the mouse is released to make data comparable.*

*Males and females must be run in separate tests; ideally males are tested first, then followed by females*

6. At the end of the 20 min run, animals are labeled (if necessary) and put back into their home cage.
7. After each run, any feces are removed and the arena is thoroughly wiped.
8. Analysis of the recording is done to measure the activity of each mouse in each of the zones per 5 minute bins.

## Notes

1. Please ensure that the mice are not handled prior to the test, except handling for cage change.
2. Ear clipping should be done after the test if necessary .

**Data QC**

1. Verify total time of run.
2. Coherence between latency, number of entries and time in the center; e.g. it is not possible to have zero entries and have spent some time spent in the center.

## Parameters and Metadata

## Color of arena ICSLA_OFD_029_001 | v1.0

procedureMetadata

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

**Options:** White, Transparent, Black, Grey,

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## Percentage center time ICSLA_OFD_022_001 | v1.2

simpleParameter

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

**Unit Measured:** %

**Derivation:** mul(div('ICSLA_OFD_016_001', 'ICSLA_OFD_008_001'), 100)

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## Date equipment last calibrated ICSLA_OFD_041_001 | v1.2

procedureMetadata

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

## Whole arena resting time series ICSLA_OFD_001_001 | v1.1

seriesParameter

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

**Unit Measured:** s

**Increments:** 20, 15, 10, 5,

## Disinfectant ICSLA_OFD_036_001 | v1.1

procedureMetadata

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

## Whole arena average speed ICSLA_OFD_009_001 | v1.1

simpleParameter

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

**Unit Measured:** cm/s

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## Software Version ICSLA_OFD_039_001 | v1.0

procedureMetadata

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

**Options:** Activity Monitor V6.02, Topscan Lite, Image OF,
Opto-Varimex 4 AutoTrack System 4.97, TSE ActiMot Vers. 08.00, Ethovision XT v8.5,
TimeOFCR4, Versamax 4.2, 06.15 / 07.01, Actitrack system, Fusion v6.3, Ethovision XT v15,

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## Periphery permanence time ICSLA_OFD_012_001 | v1.1

simpleParameter

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

**Unit Measured:** s

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## Center resting time ICSLA_OFD_015_001 | v1.1

simpleParameter

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

**Unit Measured:** s

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## Distance from light source: if direct illumination ICSLA_OFD_031_001 | v1.1

procedureMetadata

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

**Unit Measured:** cm

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## Number of animals per cage ICSLA_OFD_028_001 | v1.0

procedureMetadata

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

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## Periphery average speed ICSLA_OFD_013_001 | v1.1

simpleParameter

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

**Unit Measured:** cm/s

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## Arena ID ICSLA_OFD_038_001 | v1.0

procedureMetadata

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

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## Number of center entries ICSLA_OFD_019_001 | v1.1

simpleParameter

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

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## Experimenter ID ICSLA_OFD_035_001 | v1.1

procedureMetadata

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

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## Center average speed series ICSLA_OFD_047_001 | v1.2

seriesParameter

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

**Unit Measured:** cm/s

**Increments:** 5, 15, 10, 20,

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## Light beam barrier height (Z axis) ICSLA_OFD_049_001 | v1.1

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

**Unit Measured:** cm

**Description:** height of the Z axis light beam used to determine when mouse is rearing

**Options:** 8.6, 6.8, 8.0, 7.5,

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## Whole arena average speed series ICSLA_OFD_002_001 | v1.2

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

**Unit Measured:** cm/s

**Increments:** 15, 20, 5, 10,

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## Height of the wall ICSLA_OFD_030_001 | v1.0

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

**Unit Measured:** cm

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## Latency to center entry ICSLA_OFD_018_001 | v1.1

simpleParameter

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

**Unit Measured:** s

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## Number of center entries series ICSLA_OFD_048_001 | v1.1

seriesParameter

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

**Increments:** 10, 20, 5, 15,

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## Center average speed ICSLA_OFD_017_001 | v1.0

simpleParameter

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

**Unit Measured:** cm/s

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## Number of Rears ICSLA_OFD_006_001 | v1.1

seriesParameter

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

**Increments:** 20, 10, 5, 15,

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## Periphery resting time ICSLA_OFD_011_001 | v1.1

simpleParameter

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

**Unit Measured:** s

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## Periphery distance travelled series ICSLA_OFD_003_001 | v1.2

seriesParameter

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

**Unit Measured:** cm

**Increments:** 10, 5, 15, 20,

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## Distance travelled - total ICSLA_OFD_020_001 | v1.2

simpleParameter

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

**Unit Measured:** cm

**Derivation:** sumOfIncrements('ICSLA_OFD_005_001', 4)

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# Periphery zone ICSLA_OFD_032_001 | v1.2

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

**Unit Measured:** cm

**Options:** 7.9, 7.5, 7.6, 8, 9.39, 7.35,

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# Light intensity in the centre of the arena ICSLA_OFD_027_001 | v1.1

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

**Unit Measured:** Lux

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# Periphery average speed series ICSLA_OFD_043_001 | v1.3

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

**Unit Measured:** cm/s

**Increments:** 10, 15, 20, 5,

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# Whole arena permanence ICSLA_OFD_008_001 | v1.1

simpleParameter

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

**Unit Measured:** s

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# Whole arena resting time ICSLA_OFD_007_001 | v1.1

simpleParameter

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

**Unit Measured:** s

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# Type of analysis ICSLA_OFD_033_001 | v1.1

procedureMetadata

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

**Options:** Wide beam break, Video tracking,

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# Central zone surface area ICSLA_OFD_026_001 | v1.1

procedureMetadata

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

**Unit Measured:** % of total area

**Options:** 39, 41, 42, 40,

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# Center resting time series ICSLA_OFD_045_001 | v1.3

seriesParameter

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

**Unit Measured:** s

**Increments:** 15, 10, 5, 20,

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# Equipment ID ICSLA_OFD_023_001 | v1.0

procedureMetadata

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

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# Equipment manufacturer ICSLA_OFD_024_001 | v1.1

procedureMetadata

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

**Options:** San Diego, MED Associates Inc, Columbus Instruments, O'hara CO Ltd., Biobserve, Noldus, Panlab, TSE Systems, Accuscan, Omnitech,

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# Equipment model ICSLA_OFD_025_001 | v1.0
procedureMetadata

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

**Options:** LE8822, ActiMot / MoTil 480 x 480 mm, ActiMot / MoTil, TijmeOF9, VMX 1.4b, MED-OFA-RS, 2325-0248, Unknown, Opto-Varimex 4, SuperFlex Fusion,

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# Number of rears - total ICSLA_OFD_021_001 | v1.3
simpleParameter

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

**Derivation:** sumOfIncrements('ICSLA_OFD_006_001', 4)

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# Arena Material ICSLA_OFD_040_001 | v1.0
procedureMetadata

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

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## Periphery resting time series ICSLA_OFD_004_001 | v1.2

seriesParameter

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

**Unit Measured:** s

**Increments:** 15, 20, 5, 10,

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## Distance travelled ICSLA_OFD_005_001 | v1.2

seriesParameter

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

**Unit Measured:** cm

**Increments:** 10, 5, 15, 20,

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## Periphery permanence time series ICSLA_OFD_042_001 | v1.2

seriesParameter

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

**Unit Measured:** s

**Increments:** 10, 20, 15, 5,

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# Center permanence time series ICSLA_OFD_046_001 | v1.2

seriesParameter

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

**Unit Measured:** s

**Increments:** 10, 20, 5, 15,

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# Start Time ICSLA_OFD_037_001 | v1.1

procedureMetadata

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

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# Center permanence time ICSLA_OFD_016_001 | v1.1

simpleParameter

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

**Unit Measured:** s

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## Periphery distance travelled ICSLA_OFD_010_001 | v1.1

simpleParameter

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

**Unit Measured:** cm

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## Center distance travelled series ICSLA_OFD_044_001 | v1.3

seriesParameter

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

**Unit Measured:** cm

**Increments:** 20, 5, 10, 15,

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## Center distance travelled ICSLA_OFD_014_001 | v1.1

simpleParameter

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

**Unit Measured:** cm

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## Arena Size ICSLA_OFD_034_001 | v1.0

procedureMetadata

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

**Options:** 44.5x44.5, 42x42, 50x50, 43.2x43.2, 45x45, 40.5x40.5, 40x40, 44x44,

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# Percentage center movement time ICSLA_OFD_050_001 | v1.0

simpleParameter

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

**Unit Measured:** %

**Description:** percentage_center_movement_time

**Derivation:**
mul(div(sub('ICSLA_OFD_016_001', 'ICSLA_OFD_015_001'),'ICSLA_OFD_008_001'),100)

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# Resting definition threshold ICSLA_OFD_051_001 | v1.0

procedureMetadata

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

**Description:** Parameter measuring how the equipment defines a 'resting' animal

**Options:** Stationary for > 1 second, Stationary for any time, Within grid for > 2 seconds,

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# Rearing definition threshold ICSLA_OFD_052_001 | v1.0

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

**Description:** Parameter measuring how the equipment defines a 'rearing' animal

**Options:** No threshold, 1 second,

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