Open Field - centre start JAXLA_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 69
- **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 central 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.

Parameters and Metadata

Equipment ID JAXLA_OFD_023_001 | v1.0

procedureMetadata

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

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Center average speed JAXLA_OFD_017_001 | v1.0

simpleParameter

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

Unit Measured: cm/s

Equipment manufacturer JAXLA_OFD_024_001 | v1.1

procedureMetadata

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

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

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Whole arena average speed series JAXLA_OFD_002_001 | v1.2

seriesParameter

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

Unit Measured: cm/s

Increments: 5, 20, 15, 10,

Arena Size JAXLA_OFD_034_001 | v1.0

procedureMetadata

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

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

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Latency to center entry JAXLA_OFD_018_001 | v1.1

simpleParameter

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

Unit Measured: s

Whole arena resting time series JAXLA_OFD_001_001 | v1.1

seriesParameter

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

Unit Measured: s

Increments: 20, 10, 15, 5,

Percentage center time JAXLA_OFD_022_001 | v1.2

simpleParameter

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

Unit Measured: %

Derivation: mul(div('JAXLA_OFD_016_001', 'JAXLA_OFD_008_001'), 100)

Periphery zone JAXLA_OFD_032_001 | v1.2

procedureMetadata

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

Unit Measured: cm

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

Number of rears - total JAXLA_OFD_021_001 | v1.3

simpleParameter

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

Derivation: sumOfIncrements('JAXLA_OFD_006_001', 4)

Distance from light source: if direct illumination JAXLA_OFD_031_001 | v1.1

procedureMetadata

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

Unit Measured: cm

Center resting time series JAXLA_OFD_045_001 | v1.3

seriesParameter

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

Unit Measured: s

Increments: 15, 10, 5, 20,

Number of center entries series JAXLA_OFD_048_001 | v1.1

seriesParameter

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

Increments: 15, 20, 5, 10,

Periphery resting time JAXLA_OFD_011_001 | v1.1

simpleParameter

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

Unit Measured: s

Periphery permanence time series JAXLA_OFD_042_001 | v1.2

seriesParameter

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

Unit Measured: s

Increments: 5, 10, 15, 20,

Experimenter ID JAXLA_OFD_035_001 | v1.1

procedureMetadata

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

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Start Time JAXLA_OFD_037_001 | v1.1

procedureMetadata

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

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Arena ID JAXLA_OFD_038_001 | v1.0

procedureMetadata

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

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Disinfectant JAXLA_OFD_036_001 | v1.1

procedureMetadata

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

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Center distance travelled JAXLA_OFD_014_001 | v1.1

simpleParameter

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

Unit Measured: cm

Periphery average speed JAXLA_OFD_013_001 | v1.1

simpleParameter

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

Unit Measured: cm/s

Height of the wall JAXLA_OFD_030_001 | v1.0

procedureMetadata

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

Unit Measured: cm

Center permanence time JAXLA_OFD_016_001 | v1.1

simpleParameter

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

Unit Measured: s

Distance travelled JAXLA_OFD_005_001 | v1.2

seriesParameter

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

Unit Measured: cm

Increments: 15, 5, 10, 20,

Software Version JAXLA_OFD_039_001 | v1.0

procedureMetadata

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

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

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Center permanence time series JAXLA_OFD_046_001 | v1.2

seriesParameter

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

Unit Measured: s

Increments: 15, 5, 10, 20,

Periphery average speed series JAXLA_OFD_043_001 | v1.3

seriesParameter

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

Unit Measured: cm/s

Increments: 5, 20, 10, 15,

Center resting time JAXLA_OFD_015_001 | v1.1

simpleParameter

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

Unit Measured: s

Light intensity in the centre of the arena JAXLA_OFD_027_001 | v1.1

procedureMetadata

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

Unit Measured: Lux

Center average speed series JAXLA_OFD_047_001 | v1.2

seriesParameter

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

Unit Measured: cm/s

Increments: 15, 20, 5, 10,

Distance travelled - total JAXLA_OFD_020_001 | v1.2

simpleParameter

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

Unit Measured: cm

Derivation: sumOfIncrements('JAXLA_OFD_005_001', 4)

Periphery permanence time JAXLA_OFD_012_001 | v1.1

simpleParameter

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

Unit Measured: s

Number of center entries JAXLA_OFD_019_001 | v1.1

simpleParameter

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

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Arena Material JAXLA_OFD_040_001 | v1.0

procedureMetadata

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

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Periphery distance travelled series JAXLA_OFD_003_001 | v1.2

seriesParameter

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

Unit Measured: cm

Increments: 15, 10, 5, 20,

Type of analysis JAXLA_OFD_033_001 | v1.1

procedureMetadata

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

Options: Wide beam break, Video tracking,

Periphery distance travelled JAXLA_OFD_010_001 | v1.1

simpleParameter

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

Unit Measured: cm

Center distance travelled series JAXLA_OFD_044_001 | v1.3

seriesParameter

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

Unit Measured: cm

Increments: 15, 5, 20, 10,

Whole arena resting time JAXLA_OFD_007_001 | v1.1

simpleParameter

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

Unit Measured: s

Date equipment last calibrated JAXLA_OFD_041_001 | v1.2

procedureMetadata

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

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Central zone surface area JAXLA_OFD_026_001 | v1.1

procedureMetadata

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

Unit Measured: % of total area

Options: 40, 42, 39, 41,

Number of Rears JAXLA_OFD_006_001 | v1.1

seriesParameter

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

Increments: 20, 15, 10, 5,

Number of animals per cage JAXLA_OFD_028_001 | v1.0

procedureMetadata

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

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Equipment model JAXLA_OFD_025_001 | v1.0

procedureMetadata

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

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

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Color of arena JAXLA_OFD_029_001 | v1.0

procedureMetadata

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

Options: Grey, Transparent, Black, White,

Whole arena permanence JAXLA_OFD_008_001 | v1.1

simpleParameter

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

Unit Measured: s

Periphery resting time series JAXLA_OFD_004_001 | v1.2

seriesParameter

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

Unit Measured: s

Increments: 15, 5, 10, 20,

Light beam barrier height (Z axis) JAXLA_OFD_049_001 | v1.1

procedureMetadata

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: 6.8, 8.6, 7.5,

Whole arena average speed JAXLA_OFD_009_001 | v1.1

simpleParameter

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

Unit Measured: cm/s

Percentage center movement time JAXLA_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('JAXLA_OFD_016_001', 'JAXLA_OFD_015_001'),'JAXLA_OFD_008_001'),100)

Resting definition threshold JAXLA_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 JAXLA_OFD_052_001 | v1.0

procedureMetadata

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

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

Options: No threshold, 1 second,