Open Field BCMLA_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 52
- **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

Center resting time BCMLA_OFD_015_001 | v1.1

simpleParameter

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

Unit Measured: s

Number of center entries BCMLA_OFD_019_001 | v1.1

simpleParameter

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

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Periphery zone BCMLA_OFD_032_001 | v1.2

procedureMetadata

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

Unit Measured: cm

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

Equipment ID BCMLA_OFD_023_001 | v1.0

procedureMetadata

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

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Latency to center entry BCMLA_OFD_018_001 | v1.1

simpleParameter

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

Unit Measured: s

Whole arena resting time series BCMLA_OFD_001_001 | v1.1

seriesParameter

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

Unit Measured: s

Increments: 5, 10, 15, 20,

Periphery permanence time series BCMLA_OFD_042_001 | v1.2

seriesParameter

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

Unit Measured: s

Increments: 5, 10, 20, 15,

Periphery distance travelled BCMLA_OFD_010_001 | v1.1

simpleParameter

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

Unit Measured: cm

Center distance travelled BCMLA_OFD_014_001 | v1.1

simpleParameter

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

Unit Measured: cm

Whole arena resting time BCMLA_OFD_007_001 | v1.1

simpleParameter

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

Unit Measured: s

Periphery resting time BCMLA_OFD_011_001 | v1.1

simpleParameter

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

Unit Measured: s

Periphery permanence time BCMLA_OFD_012_001 | v1.1

simpleParameter

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

Unit Measured: s

Center distance travelled series BCMLA_OFD_044_001 | v1.3

seriesParameter

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

Unit Measured: cm

Increments: 20, 5, 15, 10,

Arena ID BCMLA_OFD_038_001 | v1.0

procedureMetadata

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

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Distance travelled - total BCMLA_OFD_020_001 | v1.2

simpleParameter

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

Unit Measured: cm

Derivation: sumOfIncrements('BCMLA_OFD_005_001', 4)

Number of Rears BCMLA_OFD_006_001 | v1.1

seriesParameter

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

Increments: 5, 15, 20, 10,

Light beam barrier height (Z axis) BCMLA_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,

Center average speed series BCMLA_OFD_047_001 | v1.2

seriesParameter

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

Unit Measured: cm/s

Increments: 15, 20, 5, 10,

Software Version BCMLA_OFD_039_001 | v1.0

procedureMetadata

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

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

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Type of analysis BCMLA_OFD_033_001 | v1.1

procedureMetadata

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

Options: Wide beam break, Video tracking,

Center average speed BCMLA_OFD_017_001 | v1.0

simpleParameter

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

Unit Measured: cm/s

Periphery resting time series BCMLA_OFD_004_001 | v1.2

seriesParameter

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

Unit Measured: s

Increments: 20, 5, 10, 15,

Distance from light source: if direct illumination BCMLA_OFD_031_001 | v1.1

procedureMetadata

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

Unit Measured: cm

Start Time BCMLA_OFD_037_001 | v1.1

procedureMetadata

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

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Central zone surface area BCMLA_OFD_026_001 | v1.1

procedureMetadata

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

Unit Measured: % of total area

Options: 39, 40, 42, 41,

Disinfectant BCMLA_OFD_036_001 | v1.1

procedureMetadata

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

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Experimenter ID BCMLA_OFD_035_001 | v1.1

procedureMetadata

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

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Equipment model BCMLA_OFD_025_001 | v1.0

procedureMetadata

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

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

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Arena Size BCMLA_OFD_034_001 | v1.0

procedureMetadata

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

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

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Arena Material BCMLA_OFD_040_001 | v1.0

procedureMetadata

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

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Distance travelled BCMLA_OFD_005_001 | v1.2

seriesParameter

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

Unit Measured: cm

Increments: 5, 15, 20, 10,

Periphery average speed BCMLA_OFD_013_001 | v1.1

simpleParameter

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

Unit Measured: cm/s

Number of center entries series BCMLA_OFD_048_001 | v1.1

seriesParameter

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

Increments: 5, 10, 15, 20,

Color of arena BCMLA_OFD_029_001 | v1.0

procedureMetadata

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

Options: Grey, Transparent, White, Black,

Height of the wall BCMLA_OFD_030_001 | v1.0

procedureMetadata

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

Unit Measured: cm

Periphery average speed series BCMLA_OFD_043_001 | v1.3

seriesParameter

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

Unit Measured: cm/s

Increments: 10, 5, 15, 20,

Whole arena average speed BCMLA_OFD_009_001 | v1.1

simpleParameter

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

Unit Measured: cm/s

Light intensity in the centre of the arena BCMLA_OFD_027_001 | v1.1

procedureMetadata

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

Unit Measured: Lux

Periphery distance travelled series BCMLA_OFD_003_001 | v1.2

seriesParameter

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

Unit Measured: cm

Increments: 20, 10, 15, 5,

Date equipment last calibrated BCMLA_OFD_041_001 | v1.2

procedureMetadata

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

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Whole arena average speed series BCMLA_OFD_002_001 | v1.2

seriesParameter

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

Unit Measured: cm/s

Increments: 20, 10, 5, 15,

Whole arena permanence BCMLA_OFD_008_001 | v1.1

simpleParameter

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

Unit Measured: s

Percentage center time BCMLA_OFD_022_001 | v1.2

simpleParameter

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

Unit Measured: %

Derivation: mul(div('BCMLA_OFD_016_001', 'BCMLA_OFD_008_001'), 100)

Center resting time series BCMLA_OFD_045_001 | v1.3

seriesParameter

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

Unit Measured: s

Increments: 10, 20, 15, 5,

Equipment manufacturer BCMLA_OFD_024_001 | v1.1

procedureMetadata

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

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

Center permanence time series BCMLA_OFD_046_001 | v1.2

seriesParameter

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

Unit Measured: s

Increments: 20, 15, 10, 5,

Number of rears - total BCMLA_OFD_021_001 | v1.3

simpleParameter

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

Derivation: sumOfIncrements('BCMLA_OFD_006_001', 4)

Number of animals per cage BCMLA_OFD_028_001 | v1.0

procedureMetadata

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

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Center permanence time BCMLA_OFD_016_001 | v1.1

simpleParameter

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

Unit Measured: s

Percentage center movement time BCMLA_OFD_050_001 | v1.0

simpleParameter

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

Unit Measured: %

Derivation:
mul(div(sub('BCMLA_OFD_016_001', 'BCMLA_OFD_015_001'),'BCMLA_OFD_008_001'), 100)

Resting definition threshold BCMLA_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 BCMLA_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,
