

ACTIVITY WHEEL AND TELEMETRY

Does your data have you running in circles?

The rodent Activity Wheel represents a very simple and clever way to register animal physical activity in its home cage environment. The use of this high throughput tool is particularly relevant for research involving circadian rhythms, phenotyping and drug testing.

SOLUTIONS

Coulbourn running wheel, Telemetry, and Signal Interface with light sensor

Typically, the time and distance run on a voluntary running wheel are monitored over several days or weeks to determine whether a particular substance or experimental manipulation has an effect on exercise behaviour. Running wheel events may be acquired by DSI's Ponemah software via the Signal Interface solution for synchronized recording with physiological signals, such as activity/sleeping events, body temperature, heart rate, etc. Simply add a light sensor to correlate circadian rhythm with day/night light cycles.

APPLICATIONS

Phenotyping
Circadian Rhythm
Voluntary Exercise
Sleep Studies

FUNCTIONS & PARAMETERS

- Heart Rate, Blood Pressure, ECG
- EEG, EMG, Sleep
- Respiratory Rate
- Body Temperature
- Activity
- Activity Wheels Rotation as a Unit of Time

COMBINATION BENEFITS

Combining telemetry with activity wheels paradigms allow the parallel and complementary assessment of the animal physiological changes occurring during experimental tasks based on the evaluation of the animal circadian rhythms.

REFERENCES:

Changes in Heart Rate and Its Regulation by the Autonomic Nervous System Do Not Differ Between Forced and Voluntary Exercise in Mice <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6055008/>

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