The elevated plus maze (EPM) test is a widely used behavioral assay in rodent research, particularly in the field of neuroscience and psychology. It is designed to assess anxiety-like behavior in rodents, taking advantage of their natural aversion to open and elevated spaces. The test apparatus consists of two open arms and two enclosed arms, arranged in the shape of a plus sign.

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In the context of the EPM test, "open arm duration" refers to the amount of time that a rodent spends exploring or navigating the open arms of the maze. The open arms are exposed and elevated, making them potentially more anxiety-inducing for the rodent compared to the enclosed arms.

Researchers use measures like open arm duration to evaluate the animal's response to the conflicting motivations of exploring a novel environment (approach behavior) and avoiding the potential threat of open and exposed spaces (avoidance behavior). Increased time spent in the open arms is often interpreted as a reduction in anxiety-like behavior, while decreased time suggests higher anxiety levels.

The specific metrics and parameters measured during the EPM test can vary, but they commonly include:

Open Arm Entries: The number of entries into the open arms. Closed Arm Entries: The number of entries into the closed arms. Total Arm Entries: The sum of entries into both open and closed arms. Open Arm Time: The amount of time spent in the open arms. Closed Arm Time: The amount of time spent in the closed arms. Researchers analyze these measures to gain insights into the anxiety levels of rodents and the potential anxiolytic (anxiety-reducing) or anxiogenic (anxiety-inducing) effects of various experimental manipulations, such as drug treatments or genetic modifications.

It's important to note that while the EPM test is a valuable tool for studying anxiety-related behaviors, interpretations should consider various factors, including the strain of the rodents, potential confounding variables, and the need for complementary tests to provide a comprehensive assessment of anxiety-like behaviors.

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