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Working

U Michigan - Optokinetic Measurements of Visual Acuity and Contrast Sensitivity

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ABSTRACT

Summary:

A virtual optometry system is used to quantify the spatial vision of laboratory animal.

EXTERNAL LINK

https://mmpc.org/shared/document.aspx?id=306&docType=Protocol

1 Animal is placed inside a square box displaying a rotating cylinder comprised of a vertical sine wave grating is calculated and drawn in virtual three-dimensional coordinate space on four computer monitors facing the animal to form a square.

2 Animal stands unrestrained on a platform in the center of the square

3 The animal's head movement is tracked for reflexive head and neck movements in response to the grating rotating around the animal

4 The spatial frequency of the grating is clamped at the viewing position by repeatedly re-centering the cylinder on the head in real time

5 Visual acuity is quantified by increasing the spatial frequency of the grating until an optomotor response could not be elicited

6 Contrast sensitivity is measured by identifying the minimum contrast that generates tracking over a range of spatial frequencies