

HUMAN ORIENTATION PERCEPTION DURING VEHICLE ROLL TILT IN HYPER-GRAVITY

Summary

This experiment will study human perception of vehicle roll tilt in different gravitational environments. In the primary experiment, subjects will be placed in the cab of a long-arm centrifuge (AFTS-400), spun up to the desired gravitational level (1, 1.5. or 2 Earth G's aligned with the longitudinal or Z-axis), and then be passively rolled in the dark to a series of angles at different rates. Subjects will continuously report their perception of the roll angle using a somatosensory indicator which they will attempt to keep aligned with the direction of gravity. It is hypothesized that gravitational level, roll angle, and roll rate will effect subjects' perceptions of orientation.

Objectives

- To study the steady-state and transient dynamics of perception of the G-excess illusion during cab rotation in roll
- To improve G-Excess spatial disorientation training at the NASTAR center

Customer/Partner

Massachusetts Institute of Technology partnered with ETC

Status

Complete (Winter 2012). To be presented and published in 2013.

Future Publications

Journal of Vestibular Research
Aviation Space and Environmental Medicine

Conferences Presented At

NASA NSBRI Investigators Workshop (February 2012).