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## Ocular torsion induced by static and dynamic visual stimulation and static whole body roll.

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### Author information

### Abstract

By means of real-time infra-red video-oculography we studied eye torsion in 12 normal healthy subjects. Ocular torsion was induced by visual stimulation or static whole body roll with and without visual orientation ("head-fixed" or "earth-fixed"). Visual stimulation was achieved by a horizontal grating that oscillated sinusoidally in a frontal plane. The oscillation frequency varied from 0 to 0.6 Hz while amplitude varied from 6 degrees to 33 degrees. Visual orientation during whole body roll was established by mounting a 32 lx illuminated horizontal grating either on a tilting device (head-fixed) or on the wall in the frontal plane (earth-fixed). Maximum visual-induced eye torsion gain was reached at about 0.2 Hz. No eye torsion was observed in static (0 Hz) visual tilts of the grating. Maximum gain was about 0.36 at amplitudes between 6 degrees and 10 degrees. Eye torsion gain decreased with increasing amplitude and increasing frequency (> 0.2 Hz). Static whole body roll in the dark up to 180 degrees clockwise and counterclockwise induced static ocular counter rolling with a maximum amplitude of 12 degrees and a maximum gain of 0.22. Gain decreased with increasing roll down to zero at 180 degrees. Visual orientation with either head or earth fixed did not affect the amplitude or gain of the body roll induced ocular counter-rolling. The results are interpreted in terms of improving the reliability of clinical statolith testing and understanding the processes involved in motion sickness.

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