LESS SICKNESS WITH MORE MOTION

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Motion sickness may reduce both passenger comfort and crew performance. Countermeasures are dominated by medication with specific and often unwanted side effects. In this paper a new way of reducing the severity of sickness due to motion is presented, i.e., by adding a by itself non-sickening vibration with a frequency above 1 Hz to a sickening motion with a frequency below 1 Hz. Secondary to this main issue, the effect of mental distraction was studied as well as the effect of misery on task performance.

To that end, 18 blindfolded subjects were exposed to 20 minutes of 60°/s 10° off-vertical axis rotation (OVAR) on a rotation chair. Vibration was added by means of a head rest mimicking the vibration of a head leaning against a car window while on route. The effects of OVAR and head vibration were tested separately and in combination while the subjects were performing an aural letter memorising double-task. The effect of mental distraction was tested by including a condition with OVAR only. Misery was rated on an ordinal Misery Scale referring to well known sickness symptoms.

It was found that head vibration reduced the amount of sickness by 25%, while performing a mental distraction task reduced the amount of sickness by 19% (both in otherwise equal conditions). Task performance decreased with increasing sickness.

These results may be applied using simple vibration devices and do nuance the general pursuit to reduce vibration wherever possible.