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Thresholds for the perception of whole body angular movement about a vertical axis

A J Benson [1], E C Hutt, S F Brown

Affiliations

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Abstract

Thresholds for the detection (at p = 0.75 correct) of the direction of discrete angular movements about a vertical Z axis, having a cosine bell velocity trajectory and a duration of 3.3 s, were determined using an adaptive psychophysical procedure. In 30 subjects the mean threshold for the detection of Z axis stimuli was 1.5 deg.s-1. X and Y axis thresholds of 20 subjects had mean values of 2.04 and 2.07 deg.5(-1), respectively, and were significantly higher than Z axis thresholds. The mean Z axis threshold of 6 subjects, who viewed a visual target fixed to the turntable, was reduced by 8.6 dB over that obtained in darkness. Z axis thresholds were found to increase at 5.9 dB/decade as a function of stimulus duration over the range 0.9 to 20 s. The possible implication of this finding in relation to the dynamics of the sensory system mediating the perception of whole-body angular movement is discussed.

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