

HEARING LOSS AMONG CH-47D CHINOOKS HELICOPTER CREWS

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Background and Aims: The CH-47D Chinook, the most proficient and recognized transport helicopter, is a multi-mission helicopter for the military or rescuer units. According to the manufactures report, it can fly more than 150 mph at full load more than 330 nautical miles with long-range fuel tanks. The sources of rotary-wing aircraft noise include 2,220-shaft- horsepower twin Lycoming, T55-L-5 turbo shaft engines, and two 3-bladed rotors. To investigate the hearing loss among crews, we reviewed a five-year crews' annual physical examination data.

Methods: We conducted a retrospective longitudinal study (2008~2009) focus on the hearing loss among the CH-47D crews. Data were collected from the annual physical examination records, including the hearing loss in left and right ears at frequency 500 Hz, 1000 Hz, 2000 Hz, 4000 Hz and 8000 Hz. A generalized estimating equation (GEE) was used to assess the association of interests, as well with the adjustment with age.

Results: We found that during the pass 5 years: HL was not significantly increased with age ($p=0.2753$) and different ears ($p=0.1380$). Compared with the HL in 2005, there were not significant differences since 2006 to 2009. However, only the crews' HL at 4000 Hz had significant 3.94 dB (A) ($p=0.0243$) higher than the HL at 500 Hz. Moreover, compare with the variation of frequency differences at baseline (2005), there were only two significant difference at 1000 Hz vs. 500 Hz in 2008 ($p=0.0112$) and at 8000 Hz vs. 500 Hz in 2006 ($p=0.0173$).

Conclusions: It is evident that occupational NIHL may exist in the crews, especially at 4000 Hz. We suggest that a longitudinal follow-up is needed for the crews.