Differences in the Severity of General Aviation Accidents by Age: A Preliminary Examination

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“I’m the schmuck that landed on the taxi way”

• 74 year old Harrison Ford (Star Wars star) told FAA after landing on a taxiway at John Wayne Airport in Orange County, California (in February 2017)

• Was this incident age related?
Background

• Research examined age issues with pilots
• Industry continues to deal with pilot shortages
  • Allowing older pilots to fly past mandatory retirement age could reduce the impact
  • However, this brings up the question of flight safety, and if older pilots are indeed a risk.

• Purpose: Examine differences in the severity of accidents by age
More Background

• Limited literature on the subject
• Most concerned with acute incapacitation
  • But age related mental and physical declines need to also be considered
• Problem is that everyone ages differently and at different rates
Methods

- NTSB aviation accident and incident database (1982 – 2014)
- Accidents separated by Commercial and General Aviation (fixed wing)
  - Excluded home built aircraft, helicopters, gliders...
  - 74,686 total entries in data set
  - 7,203 commercial
  - 61,363 GA accidents
- Damage to the aircraft and injury of crew/passengers as a function of pilot age was examined separately using ANOVA for commercial and GA
Results

- Commercial
  - Male pilots 97.4%, (mean age = 41.75, (SD=10.88)
  - Female pilots 2.6%, (mean age of 43.51, (SD=9.71)
    - Ages were significantly different, t(7009)=8.76, p<.001

- GA
  - Males 91.8%
  - Females at 3.7% (4.5% missing)
  - Average age for pilots was 45.29 (SD=14.63)
Results

• Commercial operations
  • Damage levels of none, minor, substantial, and destroyed produced a significant difference by age, $F(3, 7197)=40.558, p<.001$
  • All levels were significantly different with the exception of none and minor
  • Age decreased across the levels of damage from an average of 43.38 for none to 39.76 for destroyed
  • Highest level for damage was substantial, making up 47.26% of reports with an average age of 40.75

• GA
  • Damage level was also significant, $F(3,60302)=4.06, p=.007$
  • Significant differences between no damage and substantial ($p=.001$) and destroyed ($p=.005$) but no other levels
Discussions/Conclusions

- Study indicated that there are differences in the degree of damage related to aviation accidents based on age.
- Additional examination of the causes of accidents, and at what age the increase is observed, is needed to ensure aviation safety for aging pilots.