



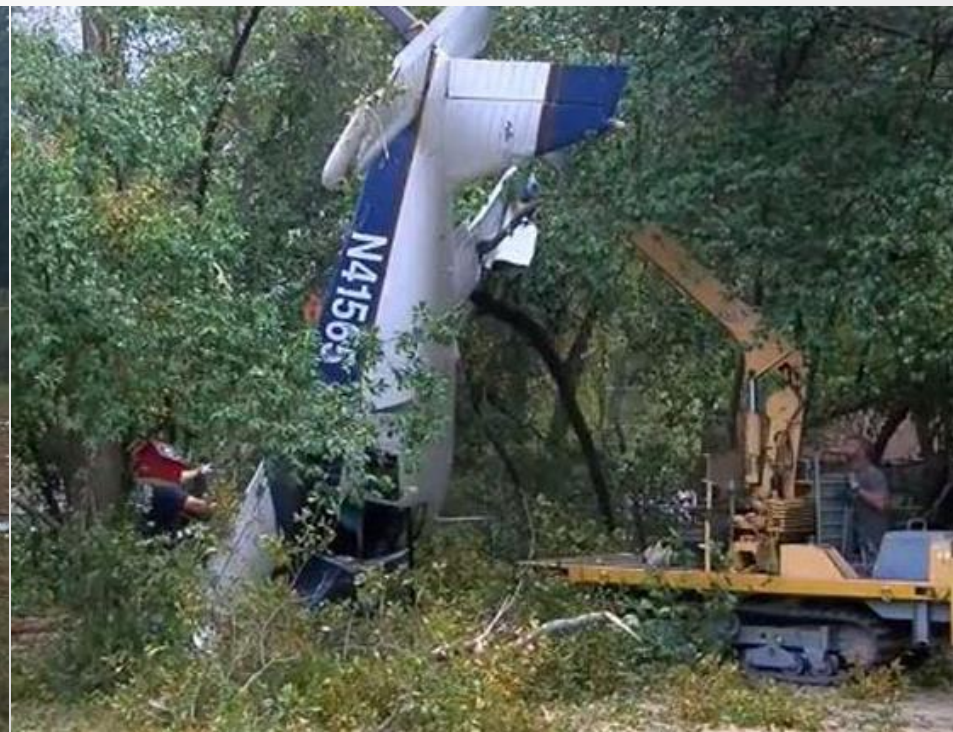
AVIATION ACCIDENTS: DO MALES AND FEMALES CRASH DIFFERENTLY?

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Background

- Pilot error is a factor in about 95% of general aviation aircraft accidents
 - There seems to be some difference in the types of accidents that males and females have
- Baker, Lamb, Grabowski, Rebok, and Guohua (2001) published a seminal paper describing the characteristics of general aviation accidents and how males and females crash aircraft differently
 - 144 female and 287 male pilots between 1983 and 1997
 - Female pilots have more accidents due to mishandling the aircraft kinetics
 - Male pilots have more accidents due to inattention and flawed decisions
- This research updated and extend the research conducted by Baker et al.

Methods

- NTSB aviation accident and incident database
 - 2008 – 2016
- General Aviation (fixed wing) Accidents
 - Excluded home built commercial, helicopters, gliders, balloons...
 - 10,402 total entries in data set
 - 7,577 GA accidents
- Examined phase of flight and cause of accident (event)

Event and phase of flight codes

- To describe each accident
 - Phase of flight codes (47 separate codes)
 - Event sequence codes (93 event codes)
- For example, event sequence coding for a “nonmechanical loss of power due to improper use of the carburetor heat by the pilot” would be as follows:
 - LOSS OF ENGINE POWER (TOTAL) - NON-MECHANICAL
 - Event 1. WEATHER - CARBURETOR ICING CONDITIONS
 - Event 2. FUEL SYSTEM, CARBURETOR - ICE
 - Event 3. CARB HEAT - IMPROPER USE OF

Results

Age	Percentage	Average Age
Male	95.9%	53.83 (SD 15.75)
Female	4.1%	42.44 (SD=17.11)

*Significant difference, $t(53970)=10.27, p<.001$

Flight	Hours
Male	3498.48
Female	1452.13

*Significant difference, $p<.0001$

Results (Phase of Flight)

Phase of flight	Percent males	Percent females	Z	p
Approach	11.65	10.27	-.632	.5274
Enroute	14.41	12.05	.985	.3246
Landing	32.94	47.72	-4.601*	.0002*
Maneuvering	8.43	4.91	1.87	.0615
Other	6.46	4.46	1.197	.2312
Standing	1.64	4.96	N/A	.N/A
Takeoff	21.66	16.96	1.675	.0939
Taxi	2.82	2.68	.122	.9029

* Significant differences

Landing Phases

Landing phase	Percent males	Percent females	Z	p
Landing	16.22	9.35	1.89	.0588
Flare/touchdown	40.57	53.27	-2.587	.0097*
Landing roll	43.21	37.38	1.181	.2376

* Significant differences

Flare/Touchdown phase

Sequence of events	Percent males	Percent females	Z	p
Abnormal runway contact	22.22	24.56	-.407	.684
Hard landing	29.73	57.89	-4.387	.0002*

* Significant differences

Discussions/Conclusions

- Significant difference between males and females in the *landing* phase of flight
 - Males performing better than female pilots in the *flare/touchdown* phase
 - Females tended to have more *hard landings* than male pilots
 - Female pilots with between 100 and 299 hours of flight time had significantly more problems on *approach* and female pilots with between 300 and 1999 hours seem to have performed poorer on landing skills
- These findings somewhat support Baker et al.
 - Female pilots tend to have more accidents due to mishandling the aircraft (mainly in the landing phase), however, this study did not find that males had more accidents related to inattention or poor planning.
- Training for females should focus more on the landing process to reduce accidents and improve aviation safety

Y O U A R E T H E R E



AMELIA EARHART CRASHED HERE

Right in the middle of the Ford Island runway, straight out from Hangar 37, Amelia Earhart's first attempt to fly around the world ended abruptly when her Lockheed Electra ground-looped on takeoff.



Luckily, no one was hurt in the accident in the pre-dawn darkness of March 20, 1937. The cause has never been determined, but it appeared that Earhart overcorrected the Electra's sideways drift by jockeying the throttles. Too much weight from the fuel-heavy airplane collapsed a gear leg.

Earhart was no stranger to Hawaii. On Jan. 11, 1935, Earhart became the first person to fly solo between Hawaii and the Mainland, piloting a single-engine Lockheed Vega.

Within hours of the crash, Earhart and her team went back to California on a Matson ocean liner. The Electra was repaired, and months later, Earhart tried once again to fly around the world, going in the opposite direction.

This time, in one of aviation's great mysteries, Earhart and navigator Fred Noonan vanished over the Pacific.

