

Aviation Human Factors Industry News

Volume XIII. Issue 15, July 23, 2017



From the sands of Kitty Hawk, the tradition lives on.

Hello all,

To subscribe send an email to: rhughes@humanfactorsedu.com

In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

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LINKS TO HF MAINTENANCE POSTERS AND THE HF GUIDE Posters

The Federal Aviation Administration has produced a series of [educational posters](#) designed to bring awareness to human fatigue in aviation maintenance (MX). Each poster is part of a [MX fatigue themed series](#) designed to improve awareness of fatigue related issues. The posters provide information on how MX personnel can change their lifestyle and work habits to improve safety and quality of life. These eye-catching posters provide helpful and practical tips to battle the problem of human fatigue. [Print any size and display in work and rest areas.](#) Poster(s) are available in a high resolution PDF format. Print on your desktop, or for 11" X 17" size, send to commercial printer.



- Quantity of Sleep (PDF, 5.9 MB) https://www.faa.gov/about/initiatives/maintenance_hf/fatigue/multimedia/media/poster_quantity_of_sleep.pdf
- Circadian Rhythm (PDF, 15.5 MB) https://www.faa.gov/about/initiatives/maintenance_hf/fatigue/multimedia/media/poster_circadian_rhythm.pdf
- Shiftwork (PDF, 5.4 MB) https://www.faa.gov/about/initiatives/maintenance_hf/fatigue/multimedia/media/poster_shiftwork.pdf
- Quality of Sleep (PDF, 9.1 MB) https://www.faa.gov/about/initiatives/maintenance_hf/fatigue/multimedia/media/poster_quality_of_sleep.pdf
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- • Caffeine & Alcohol (PDF, 2.5 MB) https://www.faa.gov/about/initiatives/maintenance_hf/fatigue/multimedia/media/poster_caffeine_alcohol.pdf
- • Stress (PDF, 5.1 MB) https://www.faa.gov/about/initiatives/maintenance_hf/fatigue/multimedia/media/poster_stress.pdf
- • Lack of Exercise (PDF, 3 MB) https://www.faa.gov/about/initiatives/maintenance_hf/fatigue/multimedia/media/poster_lack_of_exercise.pdf

The Human Factors Guide for Aviation Maintenance and Inspection (2006, 2nd edition).

Federal Aviation Administration (PDF, 7.8 MB)

http://www.faa.gov/about/initiatives/maintenance_hf/training_tools/media/HF_Guide.pdf



American Airlines mechanic celebrates 75 years on the job

American Airlines mechanic Azreil "Al" Blackman is honored with his [name on a Boeing 777](#) as Blackman celebrates 75 years with the Fort Worth-based carrier American Airlines.

Since the days of World War II, Azreil "Al" Blackman has shown up to work on American Airlines planes.

On Tuesday, the 91-year-old crew chief at New York's JFK Airport celebrated 75 years of service with the Fort Worth-based carrier. The airline [surprised him](#) by putting his name on a Boeing 777.

"I'm proud to be a mechanic. I'm proud to be part of the American Airlines team," Blackman said at the ceremony held at American's maintenance hangar at JFK.



Blackman was 16 when he joined American as an apprentice in the sheet metal shop for 50 cents an hour. Nowadays, Blackman starts his shift at 5 a.m. Each day, he drives himself to work and spends his day reviewing maintenance paperwork and walking the hangar to check on planes being worked on, according to a story about him in The New York Times.

“Every day the job is different,” Blackman told The Times. “You’re not doing the same thing repetitively, and that’s good. If in my journey around the hangar I see something I can help on, I do that.”

American’s current CEO Doug Parker and Robert Crandall, who ran the airline for 18 years, attended Tuesday’s ceremony.

“Al has worked on nearly every aircraft American has flown since the [flying boats](#) of the 1940s to the Boeing 777s of today,” Parker said in a statement. “His hard work and dedication to train and mentor others and safely maintain our aircraft has made us a better airline.”

The company also awarded Blackman a 75-year employee pin — the first one ever at American.

[Guinness World Records](#) also recognized Blackman on Tuesday as the longest career as an airline mechanic. Twenty-five years ago, the Federal Aviation Administration honored him with the [Charles E. Taylor Master Mechanic Award](#), which is given to aviation maintenance technicians with more than 50 years of experience.

“When you like what you do, [it’s not work](#),” Blackman said.

<https://twitter.com/AmericanAir/status/887354016593698817>

<https://www.youtube.com/watch?v=ajuOl5XxERo>

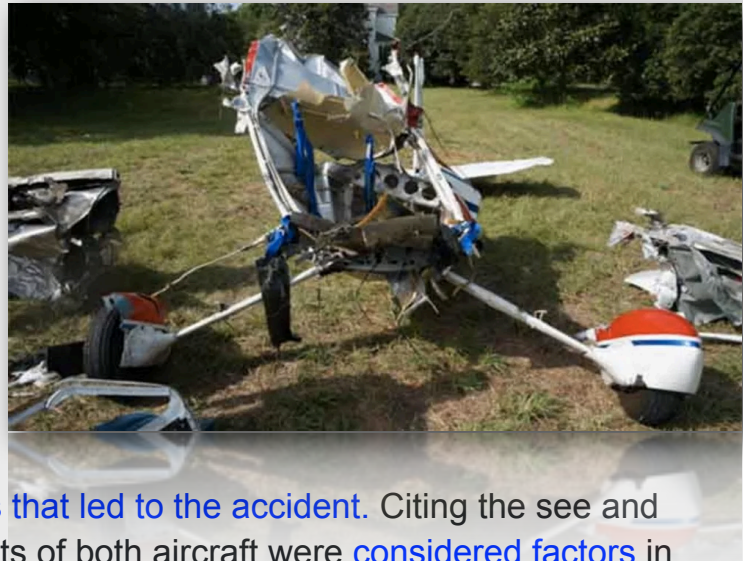
<https://www.nytimes.com/2017/07/17/nyregion/for-airline-mechanic-91-the-sky-is-one-of-many-limits.html?mcubz=0>

U.S. Government Accepts Responsibility for July 2015 Midair

CHS controller turned F-16 on collision course with the other aircraft.

The U.S. government has taken responsibility for the July 2015 midair collision between a U.S. Air Force F-16 and a Cessna 150 that killed two people.

In taking responsibility for the July 2015 midair collision between a U.S. Air Force F-16 and a Cessna 150 near Charleston SC (CHS), a government report said the FAA's air traffic controllers were responsible [for actions and omissions that led to the accident](#). Citing the see and avoid concept, the report said the pilots of both aircraft were [considered factors](#) in the collision.



The government's admission came in response to a lawsuit filed by the families of the two victims aboard the Cessna who perished in the crash. The F-16 pilot ejected after the collision and was unhurt. In the report, the U.S. government added, "Accordingly, the United States does not contest its liability for their deaths [the two men aboard the Cessna] in this case, but does contest the existence, type and quantum of damages available to plaintiffs."

The attorney for the victims, well-known aviation safety analyst and TV commentator Mary Schiavo, said the victory was, "... just the first step, a very important first step. The government finally admitted that they caused this horrible disaster." Schiavo is expected to call for a jury trial next to seek damages from the government.

The Cessna 150 had departed Moncks Corner Airport just before 11 a.m. local time for a VFR flight to Myrtle Beach and was flying a southeast heading, while the F-16, heading in a southerly direction, was under the control of the Charleston TRACON.

The F-16 pilot was preparing for a practice instrument approach to Charleston AFB at the time of the collision. [The Cessna pilot never made radio contact with CHS ATC.](#)

The Charleston controller called the Cessna as traffic to the F-16 pilot approximately 30 seconds prior to the collision, although the fighter pilot never saw the other aircraft. An NTSB animation of radar data indicates the F-16 would most likely have passed behind the Cessna if the controller had taken no action at all.

As the two aircraft approached closer, however, the Charleston controller turned the F-16 to a 180-heading placing the fighter on a collision course with the Cessna. At the time of the accident, the Charleston controller was working alone, but was assisted by a radar handoff controller, a typical configuration at CHS.

<https://www.youtube.com/watch?v=1hXPcmNfadc>

NTSB Announces Investigative Hearing for Fatal Alaska Commuter Flight Crash

The incident occurred on Oct. 2, 2016 near Togiak, Alaska

According to a news release, the NTSB has scheduled an investigative hearing for Aug. 17, 2017, in Anchorage, Alaska, as part of an ongoing investigation into flight 3153. The flight incident occurred on Oct. 2, 2016, near Togiak, Alaska.

This is the first investigative hearing held outside of Washington in almost 20 years, according to the news release.

For context: Flight 3153 was a schedule commuter flight operated by Hageland Aviation Services, Inc. The plane carried two pilots and one passenger, and impacted mountains at 11:54 a.m., 21 minutes after takeoff. There were no survivors from the incident.

“The NTSB is conducting this investigative hearing in Alaska because the majority of witnesses we want to hear from are in Alaska,” said board member Earl F. Weener. “We also believe that holding the hearing in Alaska will [help increase awareness within the Alaskan aviation community of the issues surrounding controlled flight into terrain accidents and flight into instrument meteorological conditions.](#)”

Some of the issues that will be discussed at the hearing include: operational control, pilot training, and safety management.

Lighting should have alerted pilots of potential disaster

Graphic shows the close call scenario of Air Canada AC759 at San Francisco International Airport on July 8; 2c x 3 inches; 96.3 mm x 76 mm;

Investigators looking into the frighteningly close call involving an airliner that nearly hit planes on the ground at San Francisco International Airport will try to determine why the pilots made such [a rookie mistake](#) and nearly landed on a busy taxiway instead of the runway.

The Air Canada plane with 140 people aboard came within 100 feet of crashing onto the first two of four passenger-filled planes readying for takeoff.

[Runways are edged with rows of white lights](#), and another system of lights on the side of the runway helps guide pilots on their descent. By contrast, taxiways have blue lights on the edges and green lights down the center.



"The lighting is different for good reason," said Steven Wallace, a former director of accident investigations at the Federal Aviation Administration. "Some of these visual mistakes are hard to believe, but a crew gets fixated with thinking 'That's the runway,' and it's not."

Then there is the radio transmission in which one of the Air Canada pilots sounded puzzled about seeing what appeared to be the lights of other planes on the runway. Safety experts said that [should have prompted the crew to abort](#) their approach long before they did.

Pilots said so-called glide slope technology in modern airliners also should have helped the crew find the runway unless they [failed to set it up](#) as they approached the airport.

"This was a clear crew error with many facets, I suspect," said Alan Price, a former chief pilot for Delta.

When investigators interview the pilots, they will focus on understanding how mistakes occurred "and why they did not realize the sequence of errors," said John Cox, a safety consultant and former airline pilot. Investigators will look at the pilots' use of automated-flying systems, their manual flying skills, and [how they interacted with each other](#) as uncertainty set in, he said.

Investigators from the U.S. National Transportation Safety Board may arrive this weekend and interview the pilots and air traffic controllers, an agency spokesman said Friday. They will examine information from the flight data recorder, which will tell them the plane's exact location and how it was being flown. They also will listen to the cockpit voice recorder, which may indicate whether the pilots were focused on their job [or distracted](#).

Canada's transportation safety board said the Air Canada jet skimmed just 100 feet over the tops of two planes waiting for takeoff. After an air traffic controller [ordered them to abandon their landing](#), the pilots pulled up their Airbus A320 just in time, circled and landed correctly on the runway. No one was injured.

The Canadian agency's summary was the first official account of just how dangerous the situation was.

An Air Canada spokeswoman said she could not comment because the incident is under investigation. She declined to describe the amount of experience of the pilots.

A recording of the radio calls between pilots and the control tower [captured uncertainty](#) in the Air Canada cockpit as the plane approached shortly before midnight on July 7. One of the pilots radioed to the tower that he saw lights — presumably other planes — on the runway. An air traffic controller assured him the runway was clear.

After a pilot apparently in one of the planes on the ground said the Air Canada jet was heading straight for the taxiway, a controller ordered the Air Canada crew to abort the landing.

From the vantage point of the Air Canada crew, four parallel surfaces appeared below them — from left to right they were taxiway F; runway 28L, which was closed; runway 28R, on which they were supposed to land, and taxiway C, where the other planes were waiting their turn to take off.

"I could see where you get lined up incorrectly, but once you start seeing lights on the runway you're not necessarily looking at a runway," said William Waddock, a professor at Embry-Riddle Aeronautical University. He said investigators will look at ["all the visual cues that might have confused them."](#)

Chris Manno, an American Airlines pilot, said the Air Canada crew should have stopped their approach while they figured out why they were seeing lights from other planes on what they thought was the runway.

Taxiway landings are rare, and most of them involve small planes.

In February, actor Harrison Ford landed his single-engine propeller plane on a taxiway at John Wayne Airport in Southern California after narrowly missing an American Airlines plane with 100 passengers. The actor, an experienced pilot, realized his mistake immediately and was not punished by the FAA.

Some airliners have mistakenly landed or taken off from taxiways.

In 2006 a Continental Airlines jet passed through rain that reduced visibility before landing on a taxiway in Newark, New Jersey. The captain took control of the plane from the co-pilot when he realized the mistake.

In 2009, a Delta Air Lines jet landed on a taxiway in Atlanta. In 2015, an Alaska Airlines jet landed safely on a taxiway between runways in Seattle.

Traveling on airlines has become remarkably safe. [No U.S. airline has had a fatal accident since 2009.](#)

The last fatal accident involving a foreign airline on U.S. soil was the 2013 crash at San Francisco International Airport of an Asiana Boeing 777 carrying 307. Three passengers died after the plane's tail struck a seawall while landing on runway 28L — next to the runway where the Air Canada jet landed.

The Asiana pilots came in too low and were unable to execute the kind of go-around that the Air Canada jet did.

Throughout aviation history, deadly accidents have led to safety improvements. As fatal crashes have become rare, ["the only way to get better is to learn from close calls and incidents,"](#) Wallace said.

Crew Resource Management: Two Critical Mask Donning Checklist Items



Following a cabin depressurization, the successful donning of a mask should be added to the emergency protocol. Incorporating these two key steps into the emergency descent procedure could further reduce the potential for an incapacitation to the crew.

1. Ensure Adequate Fitting of the Mask and Oxygen Recovery of the Pilot—The “1 Minute Rule”

How long should it take a hypoxic pilot to recover completely once the mask is donned? The answer is 60.13 seconds. This conclusion is from research conducted at SAMI, where the average oxygen saturation of 63% returned to 99% in 60 seconds—hence the “1 Minute Rule”. If a crewmember is not completely normal within 1 minute following the donning of the mask then the crew should check the pilot’s mask, as it may not be fitted properly. At 40,000 feet there is no room for error. The mask must be tightly fitted as the slightest amount of leakage may result in incapacitation.

2. Verbalize the Need for Middle Ear Equalization During Descent

Another vital mask donning check is crew verbal communication to frequently equalize their ears while wearing the mask during the descent. This is a critical issue to avoid incapacitating ear pain on final approach. The cabin pressure at 40,000 feet is extremely low. As the pilot begins an emergency descent it is very important that the pilot equalize his ears as needed. If the pilot does not equalize the ears severe pain can begin, which in and of itself is incapacitating, especially on final approach. The initial descent from 40,000 feet will be easy as the net pressure differential between 40,000 feet down to 30,000 feet is quite small. However, as the aircraft approaches 20,000 feet the atmosphere becomes denser and hence the need to equalize will become more common. The lower the altitude the harder it will become to equalize and if not properly managed could result in severe ear pain on final approach that compromises this critical phase of flight. If the pilot neglects to equalize during descent the ear can become “trapped” and no amount of equalizing will help at that point.

As the pressure continues to build up significantly in the final 10,000 feet of descent the pain can become so severe that it could rupture the ear drum causing immediate loss of hearing and, even worse, severe vertigo with nausea and vomiting.

In almost all cases, a pilot can sense some fullness or pressure build up in the ear before the pain ensues. That is why it is important to teach and practice this skill. Equalizing with the mask on is not as easy as we might think. The hard shell of the mask makes it difficult to pinch the nose so that the Valsalva technique works. Practice is essential to learn how to slightly rotate the hard shell portion of the mask without compromising oxygen flow but allowing the ability to perform the Valsalva technique. During a true emergency there is going to be significant anxiety and focused attention to procedures making it easy to ignore early ear discomfort.

FAA Fiddles With Slow Flight Phraseology

The task definition for slow flight in the Airmen Certification Standards (ACS) **is changing, again**. When the private pilot ACS were finalized in June 2016, the FAA changed the definition of slow flight to maintenance of “an airspeed, approximately 5-10 knots above the 1G stall speed, at which the airplane is capable of

maintaining controlled flight **without activating a stall warning**.” This was a marked change from the definition long found in the now superseded Practical Test Standards (PTS). Pilots, for many years, had demonstrated slow flight by maintaining “an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in an immediate stall.” The FAA said the reason for the change was **to discourage teaching pilots to disregard a stall warning indication**. Under the PTS standards, typically the entire maneuver was performed with the stall warning horn sounding.

The current ACS standards have been roundly criticized by flight instructors and others in the general aviation community for both failing to require demonstration of flight at minimum controllable airspeed, which many felt **was a core skill of light aircraft airmanship**, as well as for the contradictory nature of the definition.



Many aircraft will, within weight and balance limits, have a stall warning sounding more than 5 knots above the 1G stall speed. Some older aircraft lack stall warning devices.

The newest version of the slow flight definition, announced in an FAA Safety Alert for Operators, and to be incorporated in the ACS starting shortly, will require maintenance of an airspeed “at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in a stall warning (e.g., aircraft buffet, stall horn, etc.).” The new definition will not satisfy those seeking reintroduction of flight at minimum controllable airspeed into the ACS, but does [remove the ambiguity](#) between maintenance of a target airspeed versus avoidance of a stall warning activation. The new definition also more adequately covers aircraft without a stall warning system by referring to any indication of stall, rather than activation of a stall warning device.

Textile technology could monitor cockpit crew stress

Future cockpit seats could be manufactured with textiles capable of [monitoring the health of pilots](#), under a European research program.

The Active Simulator Cockpit Enhancement project is intended to develop hardware and software incorporating novel functions for a simulator centered on a new regional aircraft concept.

It is being funded by the European Commission, which is contributing €1.47 million to the parties involved - of which two-thirds goes to Spanish firm Servicios de Tecnologia Ingenieria e Informatica, which is leading the effort.

The Spanish company's partners comprise Greek firm Paragon and the UK's Nottingham Trent University, the advanced textiles research arm of which is looking into applications for [cockpit seats and even pilots' clothing](#).



"By using smart textiles we're able to provide new prognostic and diagnostic techniques for pilot monitoring, in a [completely non-intrusive way](#)," says Nottingham Trent University professor Tilak Dias, who will conduct research in co-operation with senior lecturer William Hurley.

"This will enable the collection of data which will indicate the [psychological experiences](#) a pilot goes through while navigating [the aircraft]."

Sensors embedded into fibers - including thermistors and resistance temperature detectors - could measure temperature or variations in heart rate, conceivably enabling the system to [monitor fatigue](#), the university claims, while a moisture-sensing yarn will allow measurement of perspiration.

Nottingham Trent adds that the institutions participating in the project will also look into eye-tracking technology and emulators of ambient sunlight.

Servicios de Tecnologia Ingenieria e Informatica's David de la Casa says the program is "very ambitious".

"[Being] able to see the levels of stress, both psychological and physiological, that can be induced through different events...can be valuable information [to improve training and reduce the workload of pilots](#)," he adds.

Q&A with Paul Houle, author of 'The Crash of Piedmont Airlines Flight 22'

Paul Houle has spent years of his life researching the crash of Piedmont Airlines Flight 22 and honoring its victims. He spent nearly a decade researching and writing his book, ["The Crash of Piedmont Airlines Flight 22."](#)

The author recently spoke with the Times-News about his fascination with the subject, writing the book and the spirit of the people of Hendersonville.

Houle is a former traffic-accident investigator with the U.S. Army and lives in Chesnee, S.C. Houle's book is available for purchase on Amazon and McFarland Books.

How and when did your interest with the Piedmont Airlines Crash begin?

Paul Houle: When I was a boy, I came across a book that had the front pages of disasters from the New York Times. I remember reading about this crash in the book. When I moved here, I visited the crash site and wondered why a memorial had not been built in memory of the victims. At that point, I started the process of building a memorial. How long did you work on the book?

Approximately eight years.

What made you decide to write the book?

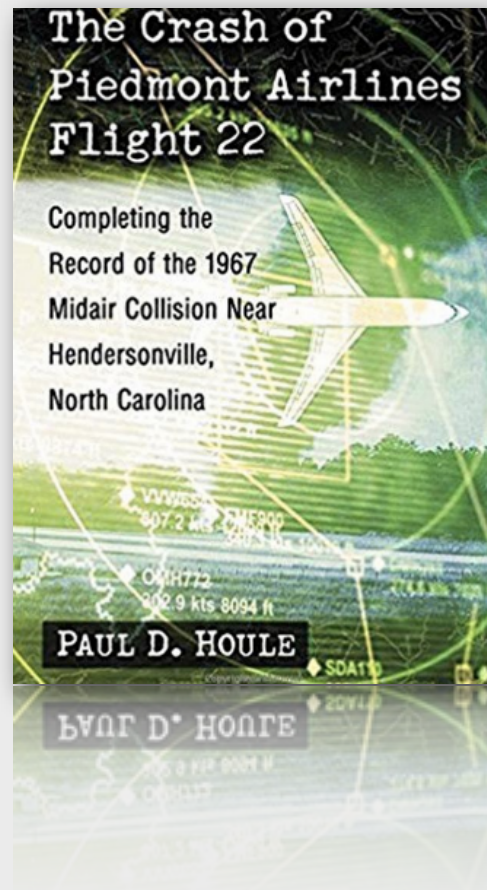
It was an interesting story and one that needed to be told.

What surprised you the most during your research?

The way the NTSB conducted their investigation.

What do you think will surprise people the most while reading your book?

The inconsistencies in the original investigation. Appointing the brother of the VP of Piedmont Airlines as the lead NTSB investigator on this case meant that the investigation had the appearance of not being impartial. I believe not putting the transcripts of the cockpit voice recorder in the final report, as well as leaving out other pertinent transcripts of the tower and aircraft tapes, meant that the NTSB did not conduct themselves in a non-prejudicial way.



How do you believe the crash 50 years ago affected the industry?

While tragic, I believe it had a positive impact on aviation safety. It forced President Lyndon Johnson to hire 900 more air traffic controllers. It also, I believe, helped speed up the process to install Collision Avoidance Systems in aircraft.

You played a large role in getting a memorial installed in Hendersonville. Can you talk about its importance?

I believe it played a role in community healing. I know it helped the healing process of the friends and families of those lost. It's a place where those with a connection to the crash can go and honor their loved ones.

Do you think a similar incident could happen within today's airline industry?

A mid-air collision could happen with a commercial jet, but I believe the odds are extremely low. In 1986, a DC-9 commercial jet collided with a private plane in California. After that crash, the FAA mandated that all commercial jets install Collision Avoidance Systems. Since that mandate, no commercial jetliner in the United States has been involved in a mid-air collision.

You questioned the NTSB's probe into the crash. Can you explain the background on that and the process you went through?

I believe it is important that the truth comes out in any investigation, especially a plane crash. When I realized that important transcripts were left out of the NTSB final report, that the NTSB's lead investigator was the brother of the VP of Piedmont Airlines, and that the report, seemed to me, to be biased against the pilot of the small plane, I decided to ask why. I put all my concerns into a Petition of Modification and sent it to the NTSB. Incredibly, they reopened the case. I became one of the first people to get the NTSB to reopen a major case who was not a party to the original investigation.

What was the most rewarding part of the process?

First off, far and away, the most rewarding part of the process was building the memorial. As for the book, the most rewarding was gathering all the information and putting it all together to tell the complete story of the mid-air collision.

How do you believe tragedies like this impact communities? What impact have you seen on Hendersonville?

I believe when a tragedy of this magnitude occurs, a community can either pretend it did not happen and ignore it, or a community can try and turn it into a positive. I do not think it is healthy to ignore an event like this. I believe healing happens when people talk and share their feelings. That, I believe, is up to the leaders of the community.

Hendersonville is symbolic of a community that rose above tragedy. When city leaders first heard the proposal for a memorial, they enthusiastically supported the effort. During the dedication ceremony, they took extreme care to ensure that the wants and needs of the families were paramount. And now, 50 years later, the Hendersonville community will gather again and remember those lost on that tragic day. That's the spirit of Hendersonville.

NTSB Study Identifies Opportunities to Reduce Speeding Deaths

The board considers speeding an “under appreciated problem.”

According to a news release from the NTSB, **speeding is involved** in about 10,000 highway fatalities each year. Although roughly the same amount of people died from speeding in the United States from 2005 to 2014 as they did in alcohol-related crashes, **speeding gets much less attention**, the NTSB says.



“Substantial reductions in highway crashes cannot be achieved without a renewed emphasis on the impact of speeding,” said NTSB Director of Research and Engineering Jim Ritter. “Lowering speeding-related highway deaths requires more effective use of [countermeasures](#) to prevent these crashes.”

Compared to other [risky behaviors](#), speeding has fewer stigmas, which leads to less public awareness. ON July 25, the NTSB will discuss a new safety study on speeding and provide countermeasures that are currently underused yet proven.

'Social Jet Lag' Called Potentially Hazardous

Sleeping in on weekends linked to more fatigue, higher CVD risk

If you're a weekday early riser, sleeping in on weekends could be hazardous to your health, researchers reported here.

Going to bed and waking up later on weekends than weekdays -- the common sleep pattern recently [dubbed social jet lag](#) -- was associated with a host of poor health outcomes, including chronic fatigue, poor mood and even an increased risk for heart disease in a preliminary analysis reported this week at SLEEP 2017, the joint annual meeting of the American Society of Sleep Medicine and the Sleep Research Society. Sleeping in on weekends is a luxury that seemingly would translate to a net positive for health, rather than a negative. But Sierra B. Forbush, of the University of Arizona in Tucson, said the disruption to the body's circadian clock caused by late-night bedtimes followed by later weekend wake times appears to be an [independent risk factor for poorer health](#).



"These results indicate that sleep regularity, beyond sleep duration alone, may play a significant role in overall health," she told *MedPage Today*, adding that keeping a [regular sleep schedule](#) throughout the week may prove to be an effective intervention for reducing cardiovascular risk and the risk of other health problems. The misalignment of biological and social time that defines social jet lag has been suggested in earlier studies to be associated with a higher risk for substance use, **especially smoking**, and for **obesity**. But Forbush said the previous research on social jet lag has typically not controlled for shorter overall sleep and insomnia. "Social jet lag ... is caused by social responsibility," Forbush said. "That could be your school or your work. Many people on weekdays wake up at, say, 7 a.m. to get to work by 8, but on the weekends they want to sleep in. [We looked at how that shift affects your health.](#)"

Forbush and colleagues analyzed data from the NIH-funded Sleep and Healthy Activity, Diet, Environment, and Socialization (SHADES) study, which is a community-based survey of close to 1,000 adults ages 22-60, conducted by the University of Pennsylvania Center for Sleep & Circadian Neurobiology.

Social jet lag, represented in hours, was assessed using the **Sleep Timing Questionnaire** and calculated by subtracting weekday from weekend sleep midpoint. A total of 984 study participants provided complete data, and insomnia. Covariates included age, sex, race/ethnicity, education, employment, income, sleep duration, and insomnia measured with the Insomnia Severity Index (ISI).

Overall health was self-reported as "excellent," "good," or "fair/poor." Cardiovascular disease was assessed as history of any condition. Depression was measured with the Patient Health Questionnaire (PHQ), fatigue with the Fatigue Severity Scale (FSS), and sleepiness with the Epworth Sleepiness Scale (ESS). Regression modeling, adjusted for all covariates, was used to examine whether social jet lag predicted any of these outcomes.

[Greater social jet lag was seen among](#) high-school graduates versus college graduates, and social jet lag was less common among African Americans, unemployed people, and those with lower incomes (compared to those with higher incomes).

Each Insomnia Severity Index point was associated with -2.0 social jet lag minutes ($P<0.01$), and each hour of sleep was associated with -6.6 minutes ($P<0.01$). Adjusted for covariates, each hour of social jet lag was associated with a 22.1% and 28.3% increased likelihood of good and fair/poor health, respectively (versus excellent health) ($P<0.01$).

Each hour was associated with an 11.1% increased likelihood of heart disease ($P<0.05$). Additionally, each hour was associated with 0.25 PHQ points, 0.19 ESS points, and 0.56 FSS points ($P<0.05$).

The researchers concluded that -- in this community sample and after adjusting for race/ethnicity, income, education, employment, sleep duration, and insomnia -- social jet lag was associated with **poorer health, heart disease, worse mood, and increased sleepiness and fatigue**.

With every hour of social jet lag respondents were 22% more likely to report that their overall health was "good" instead of "excellent" and 28% more likely to say their health was "fair or poor" instead of "excellent."

"There are a lot different health outcomes that appear **to be affected by shifting sleep**, but we don't fully understand [the reasons] for this," said Forbush, an undergraduate research assistant at the University of Arizona Sleep and Health Research Program. Michael A Grandner, PhD, who directs the program, was senior author of the study.

<http://www.medpagetoday.com/meetingcoverage/apss>

<http://www.sleephealthresearch.com/shades/>

https://link.springer.com/chapter/10.1007%2F978-1-4419-9893-4_86#page-1

TED - Ideas Worth Sharing

What are our screens and devices doing to us? Psychologist Adam Alter studies how much time screens steal from us and how they're getting away with it. He shares why all those hours you spend staring at your smartphone, tablet or computer might be making you miserable -- and what you can do about it.



https://www.ted.com/talks/adam_alter_why_our_screens_make_us_less_happy