

Aviation Human Factors Industry News

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

Hello all,

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

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Safety is the heartbeat of the aviation industry: Lufthansa

The DISAPPEARANCE of Malaysia Airlines Flight 370 and the shooting down of Flight MH17 have stirred intense interest in the safety and security of aircraft.

Star Alliance says its mission is to ensure that its members meet safety standards but that security issues can be beyond its authority.

Safety is the heartbeat of the aviation industry, which survives because people are convinced they will be transported safely, said Robert Schroeder, the check captain of Lufthansa's Airbus A340 aircraft.



"We fly incredibly safe. We fly with fuel that's about a third of the maximum take-off weight of the aircraft. We fly at 82 per cent of the speed of sound and we fly in the frigid oxygen-starved air of high altitude with nothing to separate us from this environment but a few millimeters of aluminum skin," he said.

Schroeder said what helped the aviation industry keep [a global rate of one accident for every 2.4 million flights](#) (according to International Air Transport Association statistics) [was the culture](#) of making an in-depth analysis of every plane crash to pinpoint the exact cause of the accident and standardize investigation procedures.

"We fly safely because the industry [assumes people screw up](#)," he said. "Airplanes are made by humans and flown by humans. [So we have to understand and accept that humans can cause errors](#). After analyzing plane crashes in the past century, we have come to the conclusion [that human ego](#) is responsible for most of them."

Russia Air Safety Record Near Bottom of Global League

Regardless of who is to blame for the death of Total's boss at the Moscow airport favored by President Vladimir Putin, it reinforces an indisputable fact: [Russia's air-safety record is dreadful and the wave of crashes is not abating.](#)



Numerous official investigations and a crackdown in recent years have done nothing to raise Russia from near the bottom of the global league, largely due to [weak regulation](#) and the effects of [sky-high alcohol consumption](#). Only a few hours after the private jet of Christophe de Margerie hit a snow plow on take off from Vnukovo Airport, fingers were already being pointed.

Russian investigators accused the snow-plow's driver of being drunk, saying they were also examining the actions of air traffic controllers and the flight crew.

The snow-plow driver rejected the allegations. "He considers himself guiltless as he followed all the instructions from the dispatcher," his lawyer Alexander Karabanov told Reuters. "Relatives are afraid that the airport authorities are just trying to make him ultimately responsible to avoid billions in lawsuits which are for sure to follow."

Nevertheless, no one denies the plow drove onto a runway into the path of the jet, killing de Margerie, chief executive of the fourth largest Western oil company, and three crew in the crash around midnight on Monday.

"This is a glaring fact and I think this will have big repercussions – [and that's the last thing Russia wants,](#)" Alexander Romanov, an air safety expert, told Reuters.

Romanov declined to elaborate on these repercussions, but in the accident Putin lost a close associate at an airport that he himself uses for frequent flights around Russia and abroad, sometimes as often as several times per week.

Total is one of the biggest foreign investors in Russia. The French oil and gas group expects its output there to double by 2020 and de Margerie vocally opposed Western economic sanctions imposed over the Kremlin's involvement in the Ukraine crisis.

Drunk-Tractor Factor

According to the International Air Transport Association, Russia and the other former republics of the Soviet Union grouped in the Commonwealth of Independent States (CIS) have some of the worst air-safety records in the world.

In its latest annual review, IATA said there had been a [“significant deterioration in safety”](#) in the CIS last year. The previous year it ranked the region as second worst in the world in terms of airline safety, just ahead of Africa, a marginal improvement from 2011 when it was bottom of the table.

Analysis of accident statistics last year showed that flying as a commercial airline passenger in Russia was [roughly four times as dangerous as the world average](#). Worldwide, one passenger died for every 4.7 million that board a commercial airliner. In Russia, that ratio was one to 1.2 million, according to figures from IATA, the Aviation Safety Network website and Russia's Rosaviation agency.

Aside from the disputed circumstances of de Margerie's death, [alcohol is often a factor in fatal transport accidents in Russia](#), where people each bought on average more than 10 liters of hard liquor last year, according to consumer watchdog Rospotrebnadzor.

Andrei Litvinov, an aviation expert and pilot with Russian flag carrier Aeroflot, said he had [often seen clearly intoxicated drivers](#) at the wheel of airport ground vehicles. “Look, there's a drunk tractor driving' we used to say when someone was driving a tractor or a baggage cart,” he told Reuters. “It happened really often.”

Frequently the blame has fallen on air crew themselves. Investigators determined that the pilot of an aircraft belonging to a domestic subsidiary of Aeroflot, which crashed in [2008](#) killing 88 people, had alcohol in his blood and had become disoriented.

In 2012, investigators said both pilots were drunk when their An-28 plane slammed into a forest on the Kamchatka Peninsula in the Russian Far East. Ten people were killed.

In 2011, a drunken navigator contributed to a crash in Petrozavodsk that killed 47 people when his instructions led an inexperienced pilot to attempt a fatal landing in heavy fog, according to investigators.

Alcohol misuse [is only one problem](#) in an industry that has also faced criticism over poor training and weak regulation.

When a Tatarstan Airlines Boeing crashed in Kazan last November, killing all 50 on board, it led to a wide-ranging investigation into how Russia's airline industry is regulated.

Investigators said the civil aviation watchdog had licensed training centers without appropriate credentials, and some had issued fake licenses to under-qualified pilots.

Despite the recent crackdown, critics say that regulation remains weak. "No one is dealing with it in a serious and systematic way," Litvinov said.

"Unless we have a systematic approach to civil aviation we will have to plug these holes: someone got drunk, or some airfield was in poor condition, or some traffic controller was tired ... [This will go on forever.](#)"

NTSB: Pilot Error Caused Fatal Jet Crash

The captain of a Beechcraft 390 Premier [failed to follow the correct procedures](#) for an anti-skid failure, resulting in a fiery crash that killed five passengers, the NTSB said in its final report on Tuesday. The jet was returning to Thomson-McDuffie County Airport, in Thomson, Georgia, on February 20, 2013, when it failed to slow down after touchdown. The captain initiated a go-around. Nine seconds later, the jet collided with a utility pole about 1,835 feet from the end of the runway, 63 feet above the ground.



The captain and first officer suffered serious injuries. NTSB Acting Chairman Christopher Hart said [crew fatigue was a factor in the accident.](#) "This pilot's [inadequate knowledge of his aircraft was compounded by his fatigue,](#)" said Hart. "As a result, five people died who did not have to. Just as pilots should not take off without enough fuel, [they should not operate an aircraft without enough rest.](#)" The captain failed to adhere to the airplane's flight manual procedures for anti-skid failure in flight and did not retract the lift dump -- a critical system to assist in stopping the aircraft -- immediately after making the decision to perform a go-around, according to the NTSB. According to the checklist for an anti-skid system failure, the flap configurations available for the pilot were flaps up or flaps 10. Either of these configurations would have required a longer landing distance than the runway provided. As a result, the pilot should have [sought landing at an alternate airport,](#) the NTSB said.

Investigators found the aircraft had extended flaps 30 on the approach, which is prohibited by the anti-skid failure procedures. At the time of impact, the flaps were transitioning through flaps 15. Additionally, while both the airplane's flight manual and a placard in the cockpit warned against extending the lift dump in flight, the go-around was attempted with the [lift dump deployed,](#) making a safe climb unlikely.

The full report is posted [online.](#)

http://www.avweb.com/avwebflash/news/ntsb_pilot_georgia_premier_jet_crash_fire_abort_208213-1.html

US NAVY



While working the **mid-shift** on a typical busy night at the FRS, my working party was tasked with a routine operational check of the landing gear system following replacement of hardware on the launch bar. The night shift airframes shop already had placed aircraft 655 on jacks and completed the repair. As a CDI, I did a quick safety walk-around prior to the drop check. After hooking up the portable hydraulic test stand (T-15) to the aircraft, I completed an internal safety check and then attached the external electrical power cords. Aircraft 655 was up and ready for the operational drop check.



After getting an initial warm-and-fuzzy, I did one last quick walkaround while removing the landing gear safety ground locks. Once **I thought all was well**, I instructed a fellow AM2 to turn on electrical power and a qualified airman to turn on the external hydraulics. I commenced the operational checks of the landing gear system by signaling the operator in the cockpit to actuate five half-cycles of the gear to ensure that there was no air in the hydraulic lines, as well as to verify proper operation of the system before fully raising the landing gear. With the initial checks successfully complete, everything **seemed** to be looking good.

I signaled for the personnel in the cockpit to take their hands off the controls for safety while preparing the launch bar system for operational and warning-light checks. After prepping the launch-bar system, I signaled for the landing gear to be fully raised. The landing gear moved to the up-and-locked position without any problems. After the cockpit operator lowered the landing gear, I inspected the launch bar system and again signaled for the landing gear to be raised once more while observing the launch bar system. As the landing gear was in transition, **I heard the sound of crunching metal** and signaled for the gear to be immediately lowered. I looked over at the port landing gear and noticed that the engine access drop-down panel in the landing gear well **hadn't been in its proper "up"** position and was severely damaged. After securing hydraulics to the aircraft, I noticed that the starboard engine access panel had also been damaged severely. Unfortunately, these panels are very hard to come by in the Hawkeye community.

I could have done several things to prevent this mishap. I thought I'd done a thorough walk-around, although, in my haste, I hadn't. The fasteners that held the panels up in the wheelwell weren't fastened all the way. As the drop check proceeded, they came loose and fell open into the path of the landing gear.

A wise old first class once told me always to [take a hands-on approach](#) (literally putting your hands on items to be checked, not just a visual inspection) when checking tools or doing any kind of operational check on gear. He was right. If I'd taken this approach preparing for the drop check, I would have found the loose panels and the damage would have been avoided. [Unfortunately, I was too interested in trying to get the job done quickly.](#) A few extra minutes worth of pre-op would have saved several man hours from an already task-saturated airframes shop and would have spared the Navy thousands of dollars in replacement parts.

Birds, bats and bunnies are a plane nuisance for pilots, causing mid-air scares and damage

Forget lightning strikes and turbulence, [aviation safety data shows](#) birds, bats and bunnies are posing a bigger headache for pilots flying in and out of Australia.

Pilots registered 4147 aviation "occurrences" in the past year, with bird strikes topping the list, according to new figures from the Australian Transport Safety Bureau. [Other occurrences included](#) flat tires, smoking ovens, landing on the wrong runway and speeding.

In Sydney, there were 476 incidents logged in the past year, including seven regarded as "serious" and three accidents.

Bird strikes were the most numerous, although one pilot also registered collision with a rabbit while another took out "two pacific black ducks".

Welcome swallows, gulls and cockatoos were among the most common species of birds creating havoc with planes in Sydney.



ATSB manager of reporting and analysis, Dr Stuart Godley, said the public should not be alarmed because planes are equipped to deal [with most](#) occurrences.

Caribbean News Desk Radio prog: Poor pilot coordination caused Caribbean Airlines flight in Guyana

An investigation into the Caribbean Airlines crash in Guyana four years ago has found that pilot error was the cause for the plane running off the runway at the Cheddi Jagan International Airport (CJIA).



The probe found that the plane touched down at approximately 4,700 feet of the 7,448 feet long runway [or about 1,700 feet beyond the runway touch down zone](#).

"The probable cause of the accident was that the aircraft touched down approximately 4,700 feet beyond the runway threshold, some 2,700 feet from the end of the runway, [as a result of](#) the Captain maintaining excess power during the flare and upon touching down, failure to utilize the aircraft's deceleration capability resulted in the aircraft overrunning the remaining runway and fracturing the fuselage," according to synopsis of the report released to the media.

["The Flight Crew's indecision](#) as to the execution of a go-around, failure to execute a go-around after the aircraft floated some distance down the runway and their diminished situational awareness contributed to the accident," the document added.

The report finds that at the time of the incident occurred on July 30, 2011, the aircraft had no mechanical defects and the wet surface of the runway did not affect the brakes of the aircraft.

Investigators said that the crew was unable to stop the aircraft on the remaining runway surface. It exited at the end of the runway, breaking through a fence and then resting on a 20-foot high earth embankment. The aircraft broke in two sections.

Assisted by the Trinidad and Tobago Civil Aviation Authority and the United States National Transportation and Safety Board, Boeing Company, Caribbean Airlines and the Caribbean Aviation Safety and Security Oversight System, the investigators say that [the probable cause of the accident was](#) that the captain maintained excess power during the flare and upon touching down, did not utilize the aircraft's full deceleration capability.

Investigator-in-Charge at the Guyana Civil Aviation Authority (GCAA), Paula Mc Adam says the flight recorder retrieved from the Boeing 737 aircraft shows that [there was little coordination between the pilot and the co-pilot](#). "The statement that there was not effective coordination comes from the cockpit voice recorder and during the landing, at the point of the landing there was not significant interaction between the Pilot and the First Officer and it showed to us that there [was a lack of awareness in the cockpit](#) of where the aircraft was so we came to the conclusion that there was not effective coordination," she said.

Ms Mc Adam says tests conducted on the pilot and co-pilot at the Georgetown Public Hospital Corporation did not reveal any traces of alcohol or narcotics. She added that the pilots were very experienced flying to Guyana.

No one was killed but a passenger's leg was seriously injured and eventually it amputated.

A number of the 157 passengers have filed lawsuits against Caribbean Airlines in Guyana and the United States.

[App puts travel risk management at your fingertips](#)

Travel risk management advice and assistance is now available on your iPhone. MedAire's popular app, Trip Ready, provides important travel safety information for pilots and crew. Previously available only for the Apple iPad, the MedAire Trip Ready app provides users [essential information about their destinations](#).

Organized by ICAO, users can build their own dashboard to see medical and travel risk ratings, local time, current weather, and NOTAMs for each destination on their itinerary.

All users have access to further information on their destinations by ICAO airport code, including nearby lodging & dining options, conversion calculators (currency, distance, temperature),

and a feature to add personal notes about their itinerary. A weather tab includes information on temperature, visibility, winds, METAR and TAF.

Users with MedAire Membership have access to even more features, including notification of events that may affect their itinerary or personal wellbeing, including disease outbreaks, protests, and natural disasters. In addition to being alerted of the event, users are provided a synopsis of the occurrence and advice to mitigate the risk.

“We refer to MedAire Trip Ready when deciding whether to accept a flight and making our go/no go decisions” Stephen Finch, Commercial Manager of Finesse Executive said. “With the MedAire Trip Ready app for iPhone, our crews will have [access to critical information down route](#), allowing us to reduce risks to potential travel safety issues and add to the wellbeing of our passengers and crew.”



Enhanced features on the MedAire Trip Ready app for iPhone include the ability to call MedAire’s MedLink global response center directly from the app, as well as find nearby lodging and dining options by distance from your current location.

MedAire members have access to Aviation Travel Security Briefs via Trip Ready. The Aviation Travel Security Briefs provide an overview of medical and security considerations in the vicinity of the airport and may be downloaded and emailed to other crew and passengers.

The MedAire Trip Ready app for iPhone requires iOS 7.0 or later.

For more information and to download the MedAire Trip Ready app for iPad or iPhone, visit www.medaire.com/tripready

Maintenance Line Operations Safety Assessment (LOSA):

On September 10-12, 2014, Civil Aerospace Medical Institute researcher Dr. Carla Hackworth participated in the International Air Transportation Association (IATA) Airside Safety Group meeting held in Montreal, Canada. At the request of IATA, Dr. Hackworth delivered a



presentation describing the [Line Operations Safety Assessment \(LOSA\)](#) extension to Maintenance and Ramp operations. LOSA is a joint industry and research initiative designed to help standardize ramp operating procedures and promote safe practices. [It provides a process](#) for trained observers to collect and analyze factors contributing to optimum performance, assess risk or error, develop error mitigation strategies, and measure the effectiveness of those strategies. The briefing described the purpose of LOSA, best practices of LOSA, and provided the necessary products to implement a LOSA program. The products include an implementation guide, LOSA posters, maintenance and ramp observation forms, training modules, and database software.

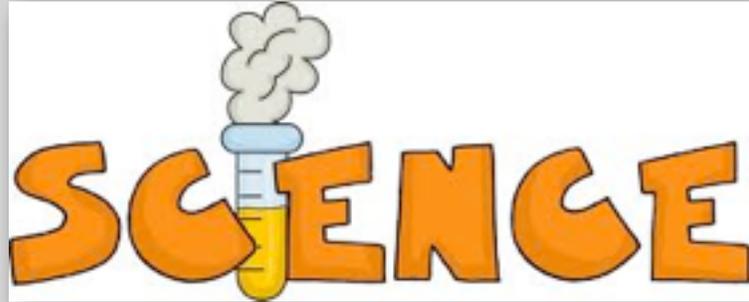
Participation in this activity supports the Administrator's Strategic Initiatives to Enhance Global Leadership and Make Aviation Safer and Smarter.
Carla Hackworth, CAMI

All of the information needed is available on the FAA's Human Factors in Aviation Maintenance website:

http://www.faa.gov/about/initiatives/maintenance_hf/losa/

New project to detect possible damages in aircraft parts early in process

UT Arlington engineering professors have received a \$451,781 Air Force Office of Scientific Research grant to examine the material surface at the micro- and nano-scale level that will provide [clues for predicting fatigue in aircraft parts](#).



Haiying Huang, professor of Mechanical and Aerospace Engineering, said the new technology and process would be better and more efficient than taking X-rays of an aircraft's wing. "We'll be able to determine metal fatigue at very early stages when we look at it on this scale," Huang said. "Certain patterns of surface roughness changes will tell us how the material will behave [when put under the fatigue of flying](#)."

In addition, the team received a \$348,385 grant from the Defense University Research Instrumentation Program of the Air Force Office of Scientific Research to purchase two pieces of equipment that will help gauge the wear on these aircraft parts.

The highly competitive DURIP grant will allow Huang to purchase a scanning whitelight interferometric surface profiler integrated with a compact mechanical tester and an electron backscatter diffraction module.

The surface profiler provides researchers with in-situ three-dimensional surface profiling of fatigued specimens. The diffraction module will be retrofitted with a scanning electron microscope to allow researchers to measure dislocation patterns in the fatigued material.

Stathis Meletis, professor and chair of the Materials Science and Engineering Department, is helping on the project.

Meletis said one strength of the system is that [testing can be done in a non-destructive way while the aircraft is in service](#).

"You can take your readings while the aircraft is on the runway," Meletis said. "You don't have to take measurements in a component in the lab and test it there."

Huang said the instruments make it possible for researchers to look at the material's crystal structure.

"It's at that level, that we can begin to assess metal fatigue. That's at the very beginning of the process," Huang said. "Those crystals and how they behave can tell us how the material's life will unfold. It speeds up the experiment process."

Finding out early on in the fatigue process is a key point in ensuring safety and reducing cost, both professors said.

Khosrow Behbehani, dean of the College of Engineering, said the AFOSR grant [will provide a wonderful opportunity for increasing the safety of flights.](#)

"This investigation will provide a convenient way of monitoring the airworthiness of a plane and that will be vital to the military and the flying public as well," Behbehani said. "It addresses the number one priority in aviation, safety."

Behbehani added that the equipment will benefit both departments, as well as any other departments, school or colleges that collaborate with engineering faculty.

[RampTrack Helps Prevent Hangar Rash](#)

Recently launched Wingspan Systems of Mission, Kan., debuted its new RampTrack ground accident avoidance warning system. As the name suggests, RampTrack is a ground-based technology to help FBOs and ground-handling personnel [avoid aircraft accidents.](#)



Employing its "sensor fusion software," RampTrack places multiple types of sensors inside hangars and on ramps to detect problems and [alert ground crews](#) to the potential for an accident in time to plan for avoidance, both for aircraft being moved and those that are parked. RampTrack also helps with security and asset tracking in addition to its primary role of accident avoidance, according to WingSpan Systems.

It creates invisible “[safety zones](#)” or protected bubbles around aircraft, enabling the prediction and mitigation of potential hazards before damage can occur.

The system is designed to work with both wired and wireless portable multi-sensor proximity devices, and these are networked with accelerometer-based movement detectors and surveillance cameras. All of the data gathered is sent to RampTrack’s “fusion” server, which merges the data to create a “[protection envelope](#)” around the aircraft. The system can track the protected aircraft in real-time and offers hazard alert capabilities, too. RampTrack can accept input from other types of sensors such as GPS, motion, spatial, tampering, radiation and volatile organic compound detectors.

RampTrack was designed to address [all the typical types of ground incidents, including](#) towing, ground service vehicle impact, hangar damage and other ramp movement. All of these, according to the Flight Safety Foundation, result in some [\\$7 billion worth of damage annually](#). The WingSpan engineering team began proof-of-concept testing of its multi-sensor system in mid-September with Banyan Air Service in Ft. Lauderdale, Fla.

Wingspan Systems is also introducing two other RampTrack products at NBAA 2014. The first is a simpler, tactical version of the main system, tentatively called the RampTrack aircraft repositioning system, which uses the fusion server, three mobile cones and a tug relay warning device to assist smaller operations in moving aircraft in the hangar or on the ramp. The second is a portable security system derived from RampTrack technology, aimed at aircraft owners and operators that wish to insure the security of their parked aircraft. This system is a compact mobile security system that can be easily deployed when aircraft are away from home base and left unattended at remote airports.

<http://www.ramptrack.com/>

New Zealand Training Company Calls For More Female Pilots

CTC Aviation Estimates Only About Four Percent Of Airline Pilots Globally Are Women

A flight school in New Zealand is actively seeking women to enter a training program to become airline pilots, as the [industry forecasts](#) that over 500,000 new pilots will be needed over the next 20 years.

Peter Stockwell, COO of CTC Aviation in Hamilton, New Zealand, says adding more women to the ranks of airline pilots would increase diversity in an industry where it is estimated **that only four percent** of the world's active airline pilots are women. The news website stuff.co.nz reports that Stockwell says that there is a high chance of job placement in airline industry for what he describes as a "glamorous" job with good long-term salary prospects.

CTC flight instructor Emma-Jane Lacy said that it has been her experience that women have **"superior situational awareness"** and can "build an excellent mental picture of their surroundings, which is key to flight safety."

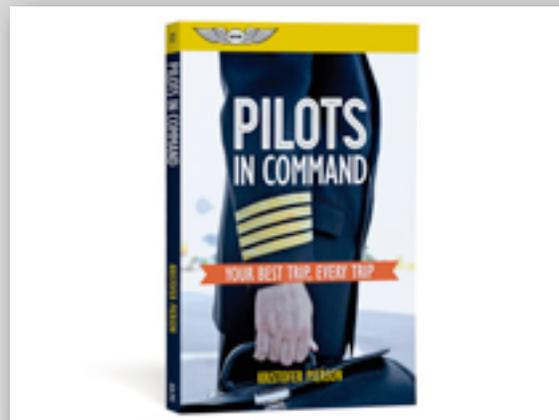
Stockwell said the company is looking to develop relationships with all-girl schools and the New Zealand Association of Women in Aviation in an effort to attract more women to the profession.



Pilots in Command: Your Best Trip, Every Trip

Pilots in Command: Your Best Trip, Every Trip goes beyond the requirements of flight training curricula into what is both a rarity and a necessity: sage advice from real pilots, for student and professional aviators alike, about how to be true leaders.

Captain-candidates at air carriers go through a **"captains class,"** an extra module in pilot upgrade training that helps them learn to operate each flight as a good leader. Yet not every captains class provides tricks of the trade or solid, experience-proven, leadership advice.



Pilots know that when things go wrong, everyone looks to the captain — the pilot in command — [to make things right](#).

In an easy-to-use format, on a range of topics that all tie into the application of basic leadership skills, the author covers crew roles, crew briefings, flight attendants, crew resource management ([CRM](#)), threat and error management ([TEM](#)), ground services, dispatch, customer service, abnormal and emergency situations, layovers, crew dynamics, 14 CFR Part 117 rest rules, and a new model of transformational leadership and professionalism for pilots.

Effective August 1, Airline Transport Pilot (ATP) license applicants must complete a comprehensive ground school with instruction on leadership, professional development, crew resource management, and safety culture. [This book is an excellent resource for the new ATP training requirements](#).

Pilots In Command shares with you the insights and techniques typically gained only from years of experience and interaction with your fellow pilots and crew at 35,000 feet.

<http://www.asa2fly.com/Pilots-in-Command-Your-Best-Trip-Every-Trip-P2145.aspx>

Ohio State Expert Reveals the Price We Pay for Not Sleeping

Most Americans who spend part of the year on daylight saving time look forward to the extra hour of sleep when it's time to "fall back" to standard time. We are a nation of [sleep-deprived people](#), and experts at The Ohio State University Wexner Medical Center say all ages suffer in various, unhealthy ways. "For children, sleep deprivation can lead to behavior problems, trouble focusing and learning in school, and it can affect their immune systems,"



says Dr Aneesa Das, a sleep medicine specialist at Wexner Medical Center, in a release. “Chronic tiredness makes it harder to cope and process what’s going on around you.”

When children enter the teen years, sleep becomes a bigger issue. Das says a teen’s [circadian rhythm](#) tells them to stay awake later and sleep later than children and adults do. She says only 15% of teenagers get the recommended sleep they need.

“Sleep is time the body uses to restore itself. Muscles and other tissues repair themselves, hormones that control growth, development, and appetite are released. Energy is restored and memories are solidified, so we need to try to get regular sleep on a regular basis,” Das says.

For adults, [sleep loss is even more serious](#). It accumulates over the years and has been shown to contribute to several chronic diseases including heart disease, diabetes, high blood pressure, depression, and obesity. Adulthood is also when sleep-related disorders, such as insomnia or sleep apnea, are more likely. During menopause, women often experience night sweats and insomnia due to changing levels of hormones. As men age, an enlarged prostate can lead to more frequent trips to the bathroom overnight. Certain medications can also disrupt sleep, such as those for heart arrhythmia, high blood pressure, and asthma.

“Adult sleep gets more fragmented, or interrupted during the night,” Das says. “This could be caused by a medical condition, caring for young children, light and noise disturbance, pets, or [just the stress of the day](#).”

Here are the recommended hours of sleep we should get [throughout our lifetime](#), according to the National Sleep Foundation:

Infants: up to 16 hours total, including naps
Toddlers (1-3 yrs): 12-14 hours, including naps
Preschool (3-5 yrs): 11-13 hours, most do not nap after age 5
School-age (5-12 yrs): 10-11 hours
Teens: 8.5-9.5 hours
Adults: 7-9 hours

To improve the chances of getting a good night's sleep, Das offers [a few tips](#): don't perform vigorous exercise within 4 hours of bedtime; have a wind down routine that includes dim light; avoid using tablets, phones, and laptops before bed because they emit blue light that interferes with sleep; try a warm bath 2 hours before bedtime; and beware of sleep aid medications because they can have side effects.

TED - Ideas Worth Sharing

Four-star general Stanley McChrystal shares what he learned about leadership over his decades in the military. How can you build a sense of shared purpose among people of many ages and skill sets? By listening and learning — and addressing the possibility of failure.



http://www.ted.com/talks/stanley_mcchrystal?utm_campaign=ios-share&utm_medium=social&source=email&utm_source=email