

Aviation Human Factors Industry News

Volume XIII. Issue 06, March 19, 2017



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

Hello all,

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Crashed Dana MD-83 crew feared reprisal over emergency

Nigerian investigators have disclosed that the crew of a Dana Air Boeing MD-83 failed to take emergency action in response to a serious engine problem, apparently in **fear of attracting attention from regulators**, before the jet experienced dual-engine power loss and crashed on approach to Lagos. The crew had been discussing a discrepancy in the thrust from one of the aircraft's Pratt & Whitney JT8D engines early into the fatal flight from Abuja.



But the Nigerian Accident Investigation Bureau inquiry found that the MD-83 did not return to Abuja, and **overflew several alternate airports** – including Akure and Ibadan – where an emergency landing could have been made.

“At one time the pilot asserted that the aircraft could not quit on them,” says the inquiry into the 3 June 2012 crash. “At another time, the captain said **declaring an emergency would make [the Nigerian Civil Aviation Authority] come after them.**”

“The delay to declare an emergency due to **unexplained fear** of the regulatory body compounded their problems.”

Both Pratt & Whitney JT8D engines failed to deliver commanded thrust during final approach to Lagos and the aircraft crashed with the loss of all 153 occupants as well as six people on the ground.

No flight-data recorder information was available to the Nigerian Accident Investigation Bureau and the inquiry has had to rely heavily on the cockpit-voice recorder.

The final inquiry report contains a confusing record of the accident sequence, particularly regarding the timing of events.

But it states that the cockpit-voice recorder captured some 30min of the flight and, at the point the recording started, some 16min after the jet was airborne, the pilots were already discussing an abnormal condition regarding the correlation between thrust setting and the engine power indication.

Audio spectrum analysis by US investigators and Pratt & Whitney has proven “inconclusive”, says the inquiry. “No definitive outcome was established.” It states that, while the problem started with the left-hand engine, no flame-out was established.

While the crew initially did not express concern about the condition in the engine, they became “increasingly” worried as the flight progressed, says the inquiry. But the crew neither declared an emergency nor called for the abnormal checklist to diagnose the problem.

During preparations for the approach, the crew confirmed there was no throttle response from the left engine, and the captain took over the controls. The crew opted for an approach to Lagos’ runway 18R but still did not transmit any distress call.

With confirmation of throttle response from the right engine, [the anti-ice, ignition and bleed air were switched off](#). The crew received vectors from the radar controller and started configuring the MD-83 for landing, by deploying the flaps.

“Subsequently the problem became compounded as thrust was required to continue the final approach,” says the inquiry, pointing out that there was **no evidence of an attempt to follow an engine-out descent profile**. The landing-gear, it adds, was deployed after an audio alert from the ground-proximity warning system.

The aircraft increased its rate of descent as it passed 5,000ft some 15nm from Lagos. About 1min later the first officer asked whether both engines had “come up”, to which the captain responded: “Negative.”

Both engines at this point were failing to deliver the commanded thrust, says the inquiry, and the first officer asked the captain whether he should declare an emergency. The crew agreed to a distress call, transmitting: “Dual engine failure, negative response from throttles.”

“Though there was loss in engine power, there was no evidence of engine flame-out since the crew were able to select flaps, lower and retract the landing-gear as evident on the [cockpit-voice recorder transcript,” says the inquiry.

The radar controller instructed the flight to contact Lagos tower, **but the crew was unable to select the tower frequency**.

Investigators state that the crew discussed switching to runway 18L, offset further to the north, and the captain instructed a retraction of flaps and landing-gear. But the captain, having expressed concern about a possible stall, reiterated that he had “lost everything” and “lost both engines”, and called for various items – including “relight”, “ignition override” and “just anything” – which might help in the final moments of the flight.

Attempts to maintain altitude with manual control were unsuccessful, and automated warnings about the aircraft and the retracted landing-gear continued until impact in a densely-populated area some 8km north of the airport, on the approach centerline for runway 18R.

Investigators state that, while the engine power loss directly led to the crash, the crew's "inappropriate omission" of checklist use and "inability to appreciate the severity" of the problem contributed to the failure to divert to an alternate airport.

Inquest finds inadequate inspection contributed to fatal air tanker crash

photo of Dromader M-18.



A coroner's inquest found that an inadequate inspection contributed to the crash of an air tanker in New South Wales, Australia.

David Black, 43, died when his M18 Dromader single engine air tanker crashed while fighting a fire at Wirritin in Budawang National Park, 40 kilometers west of Ulladulla, October 24, 2013 when a **wing snapped off** the aircraft as it was approaching the fire. The crash started another bushfire which, along with high winds, hampered efforts to reach the pilot.

Below is an excerpt from an article from a local newspaper.

[The aircraft] was tested and inspected just over two months earlier by two companies, Aviation NDT and Beal Aircraft Maintenance, but [Deputy State Coroner Derek] Lee said the [work was inadequately done](#).

He wrote in his findings that testing by Aviation NDT used an [unauthorized method and did not comply with the mandatory requirements](#) of the Civil Aviation Safety Authority.

Further, the plane's wings were not removed during a visual inspection by Beal Aircraft Maintenance, meaning that corrosion and cracking on one of the left wing's attachment lugs was not detected.

By the time Mr Black crashed in October, the Australian Transport Safety Bureau found that cracking on the inner surface of the lug [had reached a critical length](#) of 10.4 millimeters and at least 32 secondary micro cracks were also identified.

The engineer behind the visual inspection, Donald Beal, told the inquest the manufacturer's service bulletin [did not mandate removal of the wings](#), so he didn't see any need to remove them.

Mr Beal also said there [was ambiguity about what visual inspections actually involved](#), Mr Lee recalled in his findings.

[FAA Working on More Flexible ASAP Guidance](#)

The FAA is committed to making Aviation Safety Action Programs (ASAPs) [more flexible](#) as part of a needed evolution to increase their effectiveness and appeal, FAA Flight Standards Service director John Duncan said last week at the Air Charter Safety Symposium in Ashburn, Virginia. As part of this, the FAA is working on a third draft of Advisory Circular (AC) 120-66C, which guides ASAPs. While there is no timeline for the AC's release, Duncan suggested that it will [loosen some perceived program constraints](#). One example is the current push to report incidents within 24 hours.



This works well for flight operations, such as when a pilot deviates from an assigned altitude and self-reports following the flight; however, [on the maintenance side](#) mishaps are often uncovered weeks later, usually by someone other than the person who made the error.

Therefore, such maintenance incidents often go unreported because of a lack of clarity about possible ramifications. “It’s still valuable information,” Duncan said. “We don’t want tight constraints in the AC to constrain us from getting that information.”

TOP 10 BARRIERS TO REPORTING NEAR-MISSES

It’s a given that reporting of near misses reduces injury incidents. A report of a near miss ([close call](#)) creates an opportunity for identifying and removing hazardous conditions and work practices. Then why is it so difficult to get your people to report near misses? [Maybe they’re discouraged by one of these common barriers:](#)

- They don’t know they are supposed to report near misses.
- They don’t know how to go about it. They don’t know they should go to the supervisor.
- They are afraid of being reprimanded or disciplined for actions that led to the incident.
- They feel pressure from co-workers to keep quiet so nobody gets into trouble.
- They are under pressure to maintain a clean incident record because the team will win a prize.
- They are new and want to make a good impression.
- The work culture says “suck it up and don’t make a big deal out of it.”
- Co-workers are viewing the incident with humor instead of seeing the hazard. If everyone is laughing, how serious could it be?
- Last time they tried to talk to the supervisor about something, they were belittled or disregarded.



- It's just too much trouble filling out those forms.

Are any of these barriers keeping your workers from vital near-miss reporting? Don't let them. Work within your companies SMS program and/or use the *Aviation Safety Action Program* (ASAP) [to break the chain of events](#) before a tragic or costly incident happens .

Dassault Introduces 3D Virtual Maintenance Training

Mirroring the methods used to design its aircraft and systems, Dassault Aviation has introduced new 3D virtual reality technology dedicated to training Falcon [maintenance engineers and technicians](#). The technology was highlighted at the recent Australian International Airshow in Geelong. Falcon Immersive Practical Training is a hands-on supplemental program for students receiving practical training on actual Falcon business jets at the Dassault Aviation training center in Bordeaux-Merignac, France. By using 3D virtual reality, students are able to readily see different parts of the Falcon airframe and its systems. And the technology allows more students to learn the same thing at once.



“[With] one instructor and 10 trainees, it can be [a bit time-consuming waiting](#) to take turns to go inside the mechanical bays and other tight spaces on the real aircraft,” said Jacques Chauvet, senior v-p worldwide customer service at Dassault Aviation. “With our [immersive training tool](#), trainees simply put on their headsets and find themselves in the same virtual spot, even in tight spaces, with a perfect view of what the instructor is doing.”

The training tool enables students to view any part or component, wiring, tubing and fittings, virtually “uncovering” panels and structure to reveal the inner workings of the aircraft. Trainees can even “roam” around inside the airframe **and simulate** inserting tools and turning wrenches in tight spaces.

GA Activity Survey

The 39th annual General Aviation and Part 135 Activity Survey (GA Survey) for reporting on calendar year 2016 has officially launched. **As always, your participation is important.** The GA Survey is the FAA’s primary source of information about the size and activity of the GA and on-demand part 135 fleet. It includes a wide range of aircraft, aircraft operations, and types of ownership. If you receive a survey, please complete it, **even if you did not fly in 2016.** Information gathered will be used only for statistical purposes and will not be released in any form that would reveal an individual participant.



If you have any questions, please call 1-800-826-1797 or email infoaviationsurvey@tetrattech.com.

Runway Excursions Most Common Type of Bizav Accident

A review of U.S.-registered business turbine airplane accidents from 2010 through 2016 by Aviation International News **AIN** reveals that during the seven-year period there were 406 total accidents—141 involving jets and 265 involving turboprops. By far the most numerous type of accident during the study



period **was the runway excursion**, primarily on landing, though typically the damage in these mishaps was minor with no injuries. Still, **investigators blamed many of these mishaps on the flight crew's lack of** proper approach procedures or failure to recognize and be prepared for likely circumstances that could result from, for example, a wet, icy or snowy runway. The least number of fatalities occurred in 2010 for both jets and turboprops. In that year, there was one fatal business jet accident (Part 91) in which two people lost their lives. In 2010, twelve people were killed in four accidents involving turboprops, three under Part 91 and one under Part 135.

There have never been any fatal accidents involving Part 91K turbine airplanes. However, fractional jet operators suffered five nonfatal mishaps and fractional turboprops were in three nonfatal accidents during the study time frame.

In the seven-year period studied, the worst year for jet fatal accidents and fatalities was 2012, when 31 people died in six accidents. A strikingly similar tally followed in 2014, when 30 people died, also in six accidents. For turboprops, 2013 saw 45 deaths in 15 accidents. There was one fatal accident each for a public/government operation and a manufacturer's test flight over the study period.

The single fatal accident by a manufacturer in the study period happened on April 2, 2011, when a Gulfstream G650 crashed on takeoff for a planned test flight. The four occupants were killed.

PRIVATE VERSUS AIR TAXI

A closer examination of the data tells the rest of the story: more accidents and fatalities befell turboprops than jets. In both the jet and turboprop segments, Part 91 operations had more accidents and deaths than Part 135 missions. Air-taxi operators incurred fatal accidents in two of the seven years for jets. However, for turboprops, air-taxi flights were involved in fatal accidents for all but one year. Part 91 jets and turboprops were involved in fatal accidents every year from 2010 through 2016, with the exception of 2011, when there were no Part 91 fatal jet accidents. The only jet accident in 2011 was the aforementioned G650.

The single Part 91 fatal accident in 2010 happened on January 5 when a Learjet 35 on a positioning flight in day VMC crashed while maneuvering in the traffic pattern for landing. The two pilots were killed. The NTSB concluded that control of the airplane was lost for undetermined reasons. Nevertheless, the Safety Board said the CVR showed multiple instances that when the airplane was below 10,000 feet msl the pilots were in discussions “[not consistent with a sterile cockpit environment.](#)” In addition, the Safety Board found that the pilots appear to have conducted checklists in a “[generally informal manner.](#)”

There were other fatal accidents in which the NTSB placed blame on the crew. The one during the study period that generated the most repercussions for the business aviation community was the May 31, 2014, crash of a Gulfstream IV that took the lives of all seven occupants. The aircraft, on a planned Part 91 flight, crashed while attempting to take off from Hanscom Field in Bedford, Mass. Among many causal factors cited by the Safety Board was the discovery that the [pilots had a history of not using checklists or checking for full and free movement of the flight controls before takeoff.](#) Serious accidents that involve not conforming to recommended procedures, such as in the aforementioned Learjet 35 and GIV examples, are not a rarity for either Part 91 or 135 flights, according to Safety Board reports.

PART 135 JET FATALS

Ten people were killed in two Part 135 jet accidents during the study period. On Dec. 9, 2012, all seven people on an N-numbered Learjet 25 lost their lives when the twinjet, cruising at FL280 in Mexican airspace, suddenly entered a high-speed descent and crashed in mountainous terrain at 9,000 feet msl. The aircraft did not have a CVR, and although there was an FDR, investigators were unable to recover any information. The Mexican DGAC concluded that there was a “loss of aircraft control for undetermined reasons.”

On Nov. 10, 2015, a Hawker 125 on an air-taxi flight stalled and crashed on approach to Akron, Ohio. The nine people aboard were killed. The NTSB faulted the pilots for “[mismanagement of the approach and multiple deviations from company SOPs](#), which led to an un-stabilized approach, a descent below MDA without visual contact with the runway environment, and an aerodynamic stall.”

AIN selected 2010 as the starting point for this study because that was the first full year that **AIN** began in-house researching of accident and incident data. Before then, **AIN** reported on statistics provided by a reliable but external source. By compiling data in house, **AIN** can more thoroughly analyze accident reports and publish even more accurate numbers.

<http://www.ainonline.com/aviation-news/2011-04-02/gulfstream-g650-test-airplane-crashes-new-mexico>

<http://www.ainonline.com/aviation-news/business-aviation/2015-04-08/ntsb-docket-reveals-cockpit-warning-giv-crash>

America’s Most Sleep-Deprived Workers

A new report from the CDC looks at how many U.S. workers in different fields aren’t getting the recommended 7 hours or more, and the results are, well, eye-opening.

Click through for a look at the 25 occupations with the highest percentage of workers falling short on sleep.

Consumer Reports Releases List of Best Mattresses

Consumer Reports asks, what are the best mattresses out there?

This is the second batch of mattresses that we're presenting with our new scoring method. Instead of just averaging the scores for our petite and large/tall subjects, **we now present six columns** so that you can find a mattress that better suits your size and sleep style. To that end, we have scores for petite, average, and large/tall side sleepers and petite, average, and large/tall back sleepers. (The average is indeed an average of petite and large/tall.) If you sleep with a partner, you can choose a mattress that suits you both without having to guess.



Read the whole story at www.consumerreports.org

Don't Make a Mess of Safety

What does housekeeping have to do with safety? **Lots!** A clean and orderly workplace is essential to avoid falls, fires and many other kinds of accidents and injuries.

Checklists are a useful way to eliminate the hazards of poor workplace housekeeping. Here's a checklist you can use to keep your workplace safe.



Housekeeping Checklist:

- Workstations are clean and free of clutter.
- Materials stored in clearly labeled containers in designated storage areas only.
- Floors are clean, dry and in good condition.
- Spills and leaks of any type are cleaned up quickly and properly.
- Proper waste containers are located in easy to access areas and emptied regularly.
- Oily rags are disposed of in covered metal cans.
- Machinery is kept clean and properly maintained.
- Electrical cables, cords, plugs and outlets are inspected regularly for wear and damage.
- Stools and chairs are tucked away so they are not tripping hazards.
- Drawers and cabinet doors are kept closed to prevent tripping hazards.
- Aisles, exits and entrances are free of obstructions.
- Materials are safely stacked so they will not fall or fall
- Fire Extinguishers are easily accessible, identifiable, and not blocked by stored materials or other obstruction

IMPORTANCE OF ROOT CAUSE ANALYSIS IN INCIDENT INVESTIGATIONS

When a safety or environmental incident occurs in your workplace, you must investigate it. But the approach you take in that investigation can determine how effective you are at preventing similar incidents from happening in the future.

[A new factsheet](#) from the US agencies OSHA and the EPA explains the importance of conducting what's called a [root cause analysis in incident and near miss investigations](#).

As the factsheet explains, a root cause analysis lets an employer discover the underlying or systemic, rather than the generalized or immediate, causes of an incident. Correcting only an immediate cause may eliminate a symptom of a problem—but not the problem itself. Consider this scenario: A worker slips on a puddle of oil on the plant floor, falls and injures himself.



A traditional investigation may find the cause of this slip-and-fall to be “oil spilled on the floor,” with the remedy limited to cleaning up the spill and instructing the worker to be more careful.

A root cause analysis would reveal that the oil on the floor **was merely a symptom** of a more basic or fundamental problem in the workplace. An employer conducting a root cause analysis of the incident would ask:

Why was the oil on the floor in the first place?

Were there changes in conditions, processes or the environment?

What's the source of the oil?

What tasks were underway when the oil was spilled?

Why did the oil remain on the floor?

Why wasn't it cleaned up?

How long had it been there?

Was the spill reported?

So, in this example, a root cause analysis may have revealed that the root cause of the spill was **a failure to have an effective mechanical integrity program** that would prevent or detect oil leaks from equipment. In contrast, an analysis that focused only on the immediate cause (failure to clean up the spill) won't prevent future incidents because it wouldn't establish a system to prevent, identify and correct leaks.

BOTTOM LINE: A robust process safety program, which includes root cause analysis of incidents and near misses, can result in more effective control of hazards, improved process reliability, increased revenues, decreased production costs, lower maintenance costs and lower insurance premiums.

'Sully' plane is a hit for N.C. aviation museum

The 2016 movie "Sully" didn't get much Oscar love; the Tom Hanks film is only up for one Academy Award — for sound editing.

But the biopic got a lot of people flocking to the Carolinas Aviation Museum, home of the actual plane that Capt. Chesley "Sully"

Sullenberger landed safely in the Hudson River. [Visitor numbers more than doubled](#) after "Sully" hit the big screen in September, museum spokesperson Jan Black said. The storied plane is the centerpiece of the aviation museum near Charlotte Douglas International Airport, where the Airbus A320 was scheduled to land on that fateful day eight years ago.

US Airways Flight 1549 had just taken off from New York when it struck a flock of Canada geese, disabling its engines. Sully made an emergency water landing, and every one of the 150 passengers and five crew members survived the "Miracle on the Hudson."

The recovered aircraft was moved in 2011 to the museum — an appropriate resting place given that at least [half of the people onboard were from Charlotte](#), a major hub for US Airways, which completed its merger with American Airlines in 2015.

The museum's hangar collection is dominated by the "Miracle on the Hudson" jet.



To accommodate the height of the Airbus tail, the hulk sits low — maybe 4 feet above the pavement — on a custom-made mount. Monitors facing the 137,789-pound airliner show 2009 newscasts, interviews with passengers and the recovery of the Airbus from the Hudson.

But your attention keeps returning to the un-restored Airbus: the bottom that detached when making initial contact with the Hudson; the dings, dents and other mayhem visited on the lower fuselage; the left engine separated from the jet and recovered later. You can still spot dried "snarge," the guts of geese that crippled both engines.

The museum's storyboards, displays and well-informed docents help flesh out the story beyond the pilot-oriented film. For example, Flight 1549 was popular with corporate commuters returning to their jobs at Charlotte's big retailers and banks. [The execs' team-building skills proved an asset when the downed jet had to be evacuated.](#)

Adult admission to the museum is \$12; www.carolinasaviation.org

After-Hours Email Can Make You Sick, Science Warns

Constant connectivity isn't just bad for burnout and work-life balance.

Recently France approved a proposed law which gives employees a "right to disconnect." The legislation [obliges companies to shield their people](#) from the kind of after hours work email barrage that's pretty much standard practice over here in the U.S.

Which, if you're regularly up late at night fielding meeting requests and anxiety-laden missives from your boss, probably sounds pretty good. But then again the French are, well, French. They're known for their [fierce commitment to the good life](#), fine wine, and plenty of leisure.

In that light, this new law could also appear to be just another unaffordable continental luxury for overworked Americans to dream about while they try to dig out of their never ending inbox avalanche.

But it turns out, curbing the boss's ability to pester his or her people in the evenings isn't just about enjoying the finer things in life. Constant connectivity doesn't just potentially burn you out and burden your family, it can also make you [physically sick](#), research suggests.



[The more you check email the more likely you are to get sick.](#)

That's the bottom line takeaway of a recent post on the Association for Psychological Science blog, highlighting a handful of new studies on the effects of after hours email. Predictably this research shows that being [electronically tethered](#) to your job 24/7 is stressful, and can lead to burnout and exhaustion. You probably didn't need a massive German study with some 24,000 participants to tell you that, but if you did, it exists. So do a number of other studies linking after hours email with general stress.

Perhaps more surprising for some will be a previous study drawing on data from the 4th European Survey on Working Conditions that shows constant connectivity doesn't just lead to burnout, but to an increase in [the likelihood of a coming down with a variety of physical ailments](#).

[Here's the money sentence](#) from the APS post: "The results revealed that people who reported more after hours contact from work also reported higher rates of health issues, such as musculoskeletal pain and cardiovascular conditions." Or to put it even more bluntly, the more you check email after hours, the more likely you are to end up sick.

The takeaway for bosses and employees.

Given the well known link between psychological stress and physical symptoms, that's hardly the shock of the century, but as you're madly trying to clean out your inbox at 9pm [it's easy to lose sight of the connection between](#) this sort of behavior and your aches and pains come morning.

But even if you've got this connection clear in your mind, what's to be done? America is obviously not France, and especially given the current administration, it's highly unlikely we'll see a big surge in legislation to protect workers' anytime soon. But that doesn't mean that bosses and employees can't take rational steps to minimize the harm of after hours email themselves.

[There's plenty of advice for leaders on how to set healthy boundaries](#) and help your people avoid tech-related burnout. Even companies like Google are experimenting with programs that ask employees to hand over their work gadgets before leaving for the night. If fast-moving tech giants can manage to give their people a break, surely plenty of other businesses can too.

<http://www.inc.com/jessica-stillman/new-french-law-gives-workers-the-right-to-ignore-email-after-work.html>

<http://www.psychologicalscience.org/news/minds-business/how-afterhours-emails-might-hurt-your-health.html#.WlzZiBhh2qD>

<http://time.com/money/4429350/after-hours-email-bad-for-you/>

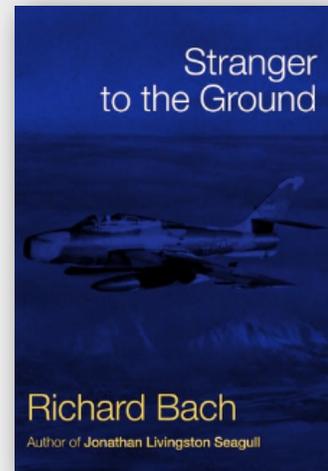
<http://www.inc.com/jessica-stillman/how-to-not-be-a-burnout-boss-work-life-balance.html>

<http://www.inc.com/jessica-stillman/your-employees-tech-addiction-is-your-problem.html>

<http://www.inc.com/jessica-stillman/work-life-balance-beats-work-life-blend-according-to-new-google-research.html>

Book: STRANGER TO THE GROUND

Richard Bach's first book, *Stranger to the Ground* is above all else an insight into the character of a man whose great compulsion is **to measure himself against storm and night and fear**. On the surface it is the tale of a memorable mission of a young fighter pilot utilizing his skills in a lonely duel with death. Yet between the lines emerges the portrait of the airman as a breed, probing outward, but even more significantly, inward.



Beware of added sugars

Drinking **just one sugary soda a day** increases the risk for type 2 diabetes, whether or not you're obese, new research suggests. After analyzing 17 respected studies, a team at the University of Cambridge found that downing a



single sugar-sweetened drink every 24 hours boots the odds of developing the chronic disease by 13 percent, "event if people are lean," the study's author, Fumiaki Imamura, tells *NPR.org*.

The researchers estimate that if broke their daily sugary drink habit, **2 million new cases of diabetes** could be prevented over the next five years.

The U.S. Food and Drug Administration, meanwhile, is also taking aim at sugars, proposing that nutritional labels on packaged foods indicate the amount of added sugar they contain as a percentage of the recommended daily calorie intake, reports *Bloomberg.com*. Health officials advise that daily calories from added sugar should not exceed 10 percent of total calories. **One 20-ounce soda typically contains about 66 grams of sugar--130 percent of the prescribed daily value.**

TED: Ideas Worth Spreading

Want to be happy? Be grateful

The one thing all humans have in common is that each of us wants to be happy, says Brother David Steindl-Rast, a monk and interfaith scholar. And happiness, he suggests, is born from gratitude. An inspiring lesson in slowing down, looking where you're going, and above all, being grateful.



[http://www.ted.com/talks/david_steindl_rast_want_to_be_happy_be_grateful?
utm_campaign=ios-share&utm_medium=social&source=email&utm_source=email](http://www.ted.com/talks/david_steindl_rast_want_to_be_happy_be_grateful?utm_campaign=ios-share&utm_medium=social&source=email&utm_source=email)