

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:

★Thunderbird Felled by Sticky Button

★Sikorsky reaches settlement over fatal '14 Navy copter crash

★Airline pilot wins major legal victory on fatigue

★USC Viterbi students find a common thread between two tragic flights

★Crashed Russian MiG-29 ran out of fuel awaiting repairs, officials say

★AVIATION SAFETY

★Online drone safety course offered by Unmanned Safety Institute

★[And Much More](#)

Thunderbird Felled by Sticky Button

The Thunderbirds aerial demonstration team F-16 that crashed in Colorado on June 2 —minutes after a flyby of the Air Force Academy graduation, attended by President Obama —was done in by a [stuck button on the throttle](#), the service announced Wednesday. Normally the throttle won't move all the way to cutoff unless the button is depressed, but the button had become stuck in the [depressed position due to](#) accumulated metallic debris, stray lubricant, a [clevis pin](#), and wear on the spring mechanism, USAF's official accident investigation found. The pilot, Maj. Alex Turner, inadvertently rotated the throttle to the engine cutoff position, and by the time he realized what had happened, was too low to restart the engine, though he attempted to do so. Turner delayed ejection for a few seconds to steer the jet away from a house. He ejected with only minor injury, was picked up, and was later introduced to Obama.



Though the Air Force said it will not comment on disciplinary action, Turner apparently was [considered blameless](#) in the accident because he was promptly returned to flying duty. Though the jet, tail No. 92-3890, seemingly landed upright and largely intact, it was declared a total loss, at a value of \$29.4 million. Technical orders have been changed to require a more thorough regular inspection of the mechanism [and the proper alignment of the pin](#). The accident board wrote that “a significant number of sticky throttle triggers in F-16 history have led to hardware changes that have reduced but not eliminated the number of occurrences” of this problem. The throttle was recovered intact and the investigation team operated the button 50 times, finding that the button got stuck about 36 percent of the time.

([Read the full report](#); Caution, large-sized file.)

Sikorsky reaches settlement over fatal '14 Navy copter crash

Connecticut-based Sikorsky Aircraft Corp. has agreed to settle wrongful death and negligence claims in a lawsuit filed over the 2014 crash of a Navy helicopter that killed three of the five crew members on a training exercise off the coast of Virginia.



Sikorsky has reached a "settlement in principle" with the widows of the three crewmen and a survivor of the crash who filed the lawsuit in federal court in Connecticut last year, according to court documents obtained by The Associated Press. Terms of the deal have not been disclosed and await approval of a judge.

"The parties have worked out an agreement which provides for the conclusion of the claim by the families against Sikorsky in exchange for limited compensation," said Francis Fleming, a New York-based lawyer for the plaintiffs. The MH-53E Sea Dragon helicopter crashed on Jan. 8, 2014, about 18 miles off the coast of Virginia Beach during what the Navy said was routine mine countermeasure training.

A Navy investigation concluded that [insulated electrical wires had likely chafed against a damaged fuel line](#), allowing a spark to escape through damaged wiring insulation and ignite fuel through holes in the line. The pilots became disoriented because of thick smoke from the fire, which led to the helicopter crashing into the ocean, investigators said.

The lawsuit blames Sikorsky and other companies for the installation of what it alleges was [defective and unsafe Kaptan wiring insulation](#). Some aviation experts believe the wiring insulation has been responsible for fires that caused other fatal aircraft crashes.

A lawyer for Sikorsky declined to comment, and a company spokesman did not return messages seeking comment. Sikorsky is owned by Lockheed Martin Corp., based in Bethesda, Maryland. Claims remain pending against other defendants in the lawsuit including Boston-based General Electric Co., Wilmington, Delaware-based DuPont Co. and New York-based L-3 Communications Corp. The three companies, which deny the allegations, were involved with the manufacturing, maintenance and equipping of MH-53E helicopters. DuPont makes the Kapton insulation for electrical wires.

Killed in the crash were Lt. Sean Snyder, 39, of Santee, California; Lt. Wesley Van Dorn, 29, of Greensboro, North Carolina; and Petty Officer 3rd Class Brian Collins, 25, of Truckee, California. Their widows and former Petty Officer 2nd Class Dylan Boone, who survived the wreck, are among the plaintiffs in the lawsuit.

After the crash, the Navy determined that the remaining 28 Sea Dragon helicopters **were at risk** because of the same wiring insulation, and crews replaced any wires and fuel lines that had deteriorated, The Virginian-Pilot reported. The Navy first identified the problem in 1987 and has spent millions of dollars replacing Kapton wiring, the newspaper reported. The Kapton wiring on the helicopter that crashed **was scheduled to be replaced**, according to the lawsuit.

Airline pilot wins major legal victory on fatigue

An airline captain and member of the British Airline Pilots' Association has accepted an apology from an airline after being sanctioned for refusing to fly due to fatigue, as well as assurances that the company remains committed to passenger safety.

Captain Mike Simkins was suspended by Thomas Cook Airlines for six months and threatened with dismissal after refusing to fly his Boeing 767 with over 200 passengers due to being fatigued. Captain Simkins took the case to an Employment Tribunal which unanimously found in his favor and against the airline.

Simkins took the [difficult decision not to fly](#) after three extremely early starts in a row, including one 18-hour day, and what would have been a 19-hour day to follow. Thomas Cook's own fatigue monitoring software showed that because of the run of duties he had done, if he had flown his rostered flight he would have landed at the end



of his duty with [a predicted performance loss](#) that would have been similar to being four times over the legal alcohol limit for flying. **Dr Rob Hunter**, BALPA's Head of Flight Safety, said. "Not only is it reasonable to refuse to fly when fatigued, [it is absolutely necessary](#). In fact, the law states that a pilot must not operate when fatigued, or likely to become fatigued. Captain Simkins should have been praised by Thomas Cook for reporting his fatigued state as required by law, not disciplined.

"Fatigue is a major threat to flight safety and [a good, open safety culture](#) is vital in ensuring that pilots and other staff members feel able to report fatigued and not put lives at stake."

Brian Strutton, BALPA General Secretary, also commented. He said, "Captain Simkins should be commended for taking this matter up and seeing it through to its conclusion. I am also pleased that BALPA helped fund Captain Simkins' legal battles, and provided substantial expert and staff support.

"Tackling fatigue remains BALPA's number one flight safety priority and we will continue to work with airlines to do that where we can, and challenge them using any means necessary when we can't."

[See also: London School of Economics survey reveals pilots feel fatigue 'not taken seriously'](#)

USC Viterbi students find a common thread between two tragic flights

The undergrads receive an award for a paper on aviation safety

A boat transports the tail of Air Asia Flight 8501, which was recovered from the sea floor.



Two flights. Two tragedies. What may have linked the accidents that took place five years apart?

In 2014, Air Asia 8501 crashed into the Java Sea off the coast of Indonesia, killing 155 passengers and seven crew members. In 2009, Air France 447 crashed into the Atlantic Ocean off the coast of Brazil, killing 228 passengers and crew.

USC Viterbi School of Engineering students Yasmeen Syed and Andre Woenardi chose these flights as the basis for a term paper on aviation safety written in their [“Human Factors in Work Design”](#) class this fall.

Titled “Air Asia 8501: Echoes of Air France 447,” the paper earned the 2016 Kasputin Scholarship Award from the International Society of Air Safety Investigators. Syed and Woenardi recently accepted the accolade in Iceland.

Why write it?

Their research on Air Asia 8501 came about organically. Woenardi, a senior and native Indonesian, wanted to write something related to his home country. Syed,

a junior who studies accident investigation, was introduced to the subject by the course's instructor, Professor Najmedin Meshkati.

“One of the things we focused on in the paper is that pilots **rely so heavily on automation these days,**” Syed said. “So because of that, in the case of emergency or in the face of adversity, they're not able to manually operate the aircraft. And that's what happened in both accidents.”

In both cases, the aircrafts encountered an “aerodynamic stall” in which the plane's angle of attack is too high, with not enough air going over the wings. This causes the plane to drop significantly in altitude, almost like it's dropping out of the sky. If aware of a stall, a pilot could manually recover by dipping the plane's nose into a dive and eventually level out.

Unfortunately, neither pilot realized they were stalling in the first place. Both had lost “**situational awareness,**” Syed explained. And for both crashes, technical error wasn't the only cause. It was pilot error that followed a technical failure.

“When you don't know what the problem is, how can you fix it?” Syed said. “They didn't know where they were relative in the sky. For whatever reason, they thought to continue going upwards, which eventually led to the accident.”

Key feedback

Guided by Meshkati, Syed and Woenardi worked with USC Aviation Safety and Security and received feedback from Douglas Moss, a United Airlines pilot who consults for an accident investigation company.

Moss had explained to them that, due to advancement in cockpit automation, pilot training **has actually been reduced in time and scope.** He made the case that training should actually be lengthened because of this advanced technology and **human error** in operating with or without it, as in the case of deactivation mid-flight.

“In both of these accidents, the pilot flying was the first officer instead of the captain, who would have had more hours flying, more experience,” Woenardi said.

Syed added that in both cases most of the pilot's experience consisted of flying automated planes. Even with dual input from the captain in Air Asia 8501, the captain and first officer **were pulling in opposite directions** on manual equipment which neutralized instead of corrected the technical failure.

For their award, Syed and Woenardi received \$2,000 each, which covered flight, hotel and conference expenses. While in Iceland, they visited glaciers, hiked to waterfalls, swam in hot springs and presented their research to an audience of aviation experts from all over the world.

"In terms of research, I think the biggest thing I learned, that I was very unaware of, is what you have to say about certain subject matters will always have critiques," Woenardi said. "Not everyone will agree with the things you say and I'm not sure the best way to handle it."

Added Syed: "Alternatively, we did have an investigator who was directly involved with Air Asia 8501 thank us tremendously for our research. The experience was so transformative and incredible. I feel like I learned so much and formed such great connections, so that scholarship is probably one of the best things that's happened to me in my life."

<http://www.isasi.org/Documents/ScholarshipEssays/ISASI%202016%20Paper.pdf>

Crashed Russian MiG-29 ran out of fuel awaiting repairs, officials say

*A Russian MiG-29K, pictured next page at an air show in 2007, ran out of fuel and crashed into the Mediterranean Sea on Nov. 13 while it **waited for a landing cable to be repaired on an aircraft carrier nearby**, Russian news reports and the U.S. Naval Institute said Tuesday. File Photo by Sergei Chirikov/European Press Agency*

A \$30 million Russian fighter jet crashed into the Mediterranean Sea earlier last month because it ran out of fuel while it waited for an aircraft carrier to fix its landing equipment, U.S. naval officials said.

The Soviet-era Mikoyan MiG-29K crashed Nov. 13 off the coast of Syria after its first attempt to land on the carrier Admiral Kuznetsov failed, the United States Naval Institute said Tuesday, based on the translation of a Russian report. The MiG-29K was flying a sortie with two other aircraft in the area near Syria and was the last that attempted to land. When the aircraft ahead of the MiG broke the landing cable on the carrier, the pilot had to fly out over the Mediterranean and wait for the cable to be repaired, the Russian report said.



While the aircraft was awaiting the repairs, it ran out of fuel and dropped into the sea.

"While in the holding area, both of the fighter's engines shut down," the translation of the Russian report said. "A preliminary explanation is that they were no longer receiving fuel. In such situations, a fighter falls like a rock, and the pilot has only one option -- to eject."

The MiG pilot did eject and was rescued by helicopter a short time later.

AVIATION SAFETY

Air accidents do happen, though they are very rare. As we have often repeated in this column, one is much more likely to reach the Great Beyond in a road accident. Millions of civilian and military planes take off and land every year without any incident. At any given moment, [there are around 13,000 civilian, business and leisure aircraft in the air](#), without counting military planes. No other transport industry can boast of such a safety record. Flying remains the safest form of transport because aviation safety benefits from an incredible team effort by governments, airline and airport operators, manufacturers and service providers, maintenance staff and others who make safety their priority.

Sometimes, air accidents do happen due to [human \(pilot\) error](#). This can even be intentional, which is called pilot suicide. The German wings plane crash of March 24, 2015, in which all 144 passengers and crew were killed, was deliberately caused by the co-pilot Andreas Lubitz. This is a rare case, though there is speculation that MH370 could also be a similar incident.



But, the latest incident in Medellin, Colombia, where 71 people, including almost the entire football team of Chapecoense from Brazil were killed in the crash of a British Aerospace 146 (BAE 146/Avro RJ85), takes human or pilot error to new heights – literally. All pilots are supposed to ensure that they have enough fuel for the flight in question and then some – at least 30 minutes flying time reserve fuel. A pilot who does not follow this simple rule simply risks the lives of his passengers.

There are some occasions when pilots realize mid-flight, that their fuel reserves may not be enough and land at the nearest available airport to refuel. In fact, the Bandaranaike International Airport in Colombo occasionally gets such requests and accommodates them at short notice. However, there is no excuse whatsoever if a pilot keeps flying on, knowing very well that the fuel on board may not last the whole journey.

Refueling

This is exactly what seems to have happened during the chartered Lamia Airlines (Bolivia) BAE 146 flight from Santa Cruz in Bolivia to Medellin in Colombia. The direct distance from Santa Cruz to Medellin – 3,000 Km, almost matched the aircraft's flying range. At least one official objected to this flight plan and suggested a refueling stop in Cobija on the Brazil-Bolivia border, but since that airport closes early, Bogota was suggested instead. Either way, the flight would have been divided into two segments and no fuel exhaustion would have occurred. However, the pilot (Miguel Alejandro Quiroga, who part-owned the plane) had decided on his own to fly direct to the final destination [without refueling](#).

He had to be in a holding pattern for nearly 20 minutes near Medellin despite a request for an early landing, because the busy airport [was already accommodating another aircraft with fuel problems](#). By the time he got the nod to land, the fuel had run out and it was too late to do anything. The plane crashed just 10 kilometers from the airport. Astoundingly, six people survived the horrendous but low altitude crash that stunned Brazil and the entire world. Mysteriously, the pilot had not declared an emergency to the ATC tower.

Every time an air accident happens, an investigation is conducted which generally leads to safer skies. Even in this case, airlines and airports are likely to insist on correct refueling, as that is the main reason for the crash. It is not rocket science – the pilots have to ensure that there is enough fuel to go to their intended destination and a little bit beyond. It is even better if the fuel levels of aircraft can be remotely monitored so that ground controllers can notify the pilots, of any lapse in that department. The technology should already exist. As suggested by many experts, it is also vital to psychologically assess pilots periodically. Remember, pilots are human beings too and there may be occasions when they are physically and/or mentally not able to fly a plane. (Airports and airlines generally take a very tough line on piloting under the influence of liquor, though pilots get caught every now and then). Earth-bound drivers are often told not to take the wheel if they are emotionally or physically drained and the same principle applies to pilots, who have a much bigger responsibility on their hands. An emotionally unbalanced pilot could cause an accident, wittingly or unwittingly. It is a risk that aviation authorities cannot afford to take.

Standards

We pen these lines as the world observed the International Civil Aviation Organization (ICAO) - organized International Civil Aviation Day on December 7. The theme for International Civil Aviation Day through 2018 is: “Working Together to Ensure No Country is Left Behind”. There is a notion that aviation safety is not a priority issue for many Third World countries which are increasingly relying on air transport – the theme reflects the fact that safety standards should be the same everywhere.

The efficiency of air operations globally is being continuously improved through new cooperative approaches by all countries, such as Air Traffic Flow Management.

“International civil aviation remains our most remarkable example of successful human cooperation and global partnership, and a shining example to the world of how much we can achieve when we meet our shared challenges together,” said the ICAO in a statement issued to mark the occasion. This is especially pertinent to the Asia Pacific region, which is seeing the biggest growth in airline and air passenger numbers through to 2040. Both, Boeing and Airbus estimate that the region will need around 30,000 new aircraft by 2035, which makes the case for safety even more important.

It is also necessary to address the safety concerns arising out of the widespread use of another flying machine – [the ubiquitous drone](#). There have been several near-misses of drones by commercial aircraft over the last few months. As both private and commercial drones (think Amazon) take to the skies in increasing numbers, the need to regulate the drone industry becomes even more obvious. “Unmanned aircraft have great potential for the future. Many applications are already providing various services, with better quality and results. At the same time, without proper discipline, these could give rise to serious safety and security problems. Registration and identification are basic requirements. Unmanned aircraft with a take-off mass higher than 250 grammes and all certified ones should be registered”, a recent European Union report said, highlighting some concerns of the aviation industry. Drones and commercial flights will have to co-exist but tougher laws and regulations must be drawn up now before another tragedy occurs.

[Online drone safety course offered by Unmanned Safety Institute](#)

The Unmanned Safety Institute (USI) has launched the first-ever online training course designed by its [team of aviation safety experts](#) to teach drone enthusiasts how to fly safely and minimize risk.

The course, known as [SAFEGUARD](#), is an hour-long self-paced online course covering essential safety topics, including understanding airspace, identifying and avoiding hazards, weather effects on drones, planning safe flights, current Federal Aviation Administration (FAA) rules and regulations and more.

The \$49 SAFEGUARD course covers safety practices essential to recreational drone pilots and hobbyists of all skill levels. It can be accessed on a desktop, tablet or mobile device. Customers receive a record of achievement that may be [redeemable through USI's insurance partners for a discount on insurance.](#)



“Aimed specifically at hobbyists, SAFEGUARD fills a much needed gap in available training options for recreational flyers,” said Chris Proudlove, USI senior vice president. “At this price, it is a great choice for anyone looking for achieve a solid understanding of important safety topics.” According to USI, the FAA over the past several years has reported a dramatic and alarming increase in drone sightings by aircraft pilots. In 2015, the number of reported drone sightings surged to more than 650 from 238 in 2014—an increase of 173 percent. In addition, there have been reports of drones being in near-collisions with law enforcement aircraft and interfering with firefighting operations.

“By the end of 2016, there could be as many as 3 million consumer drones flying in the national airspace, posing a significant challenge and potentially serious risk to other aircraft flying with persons onboard,” said Aaron Greenwald, USI president.

Headquartered in Orlando, Florida, USI provides flight safety solutions for individuals, enterprises and organizations focused on integrating and operating unmanned aircraft systems (UAS) for civil or commercial purposes.

2016’s Biggest Airline Safety Risk Is Crushed, Lost Phones

Damaged and lost phones have been nominated as the biggest dangerous goods safety risk in 2016 by Australia’s Civil Aviation Safety Authority (CASA).

CASA said in a statement that smart phones **can fall into aircraft seat mechanisms and get crushed when the seat is moved**. The resulting damage to the phone's powerful lithium battery can cause overheating and even fire on board an aircraft.

The aviation authority said there'd been nine recent emergency events as a result of crushed phones, and that airlines are now briefing those of us who are flying this Christmas to not move our seat if we drop our phone while sitting on a plane.

"Passengers must remember never to move their seat if a phone goes missing while in flight," CASA's statement said, "and to always ask the aircraft cabin crew for assistance.

"If a phone is damaged, cabin crew should be alerted immediately."

CASA added that any spare batteries must be taken in carry-on baggage with the **battery terminals protected** to minimize the risk of fire.



Missing 1-2 Hours of Sleep Doubles Crash Risk

Drivers who miss between one to two hours of the recommended seven hours of sleep in a 24-hour period **nearly double their risk for a crash**, according to new research from the AAA Foundation for Traffic Safety. The Centers for Disease Control and Prevention says that 35% of US drivers sleep less than the recommended 7 hours daily.



And with [drowsy driving](#) involved in more than one in five fatal crashes on US roadways each year, AAA warns drivers that getting less than 7 hours of sleep may have deadly consequences.

“You cannot miss sleep and still expect to be able to safely function behind the wheel,” says David Yang, PhD, executive director for the AAA Foundation for Traffic Safety, in a release. “Our new research shows that a driver who has slept for less than 5 hours has a crash risk [comparable to someone driving drunk.](#)”

The AAA Foundation for Traffic Safety’s report, Acute Sleep Deprivation and Risk of Motor Vehicle Crash Involvement, reveals that drivers missing 2-3 hours of sleep in a 24-hour period more than quadrupled their risk of a crash compared to drivers getting the recommended 7 hours of sleep. This is the same crash risk the National Highway Traffic Safety Administration associates with driving over the legal limit for alcohol.

The AAA Foundation report found that in a 24-hour period, crash risk for sleep-deprived drivers increased steadily when compared to drivers who slept the recommended seven hours or more:

- Six to seven hours of sleep: 1.3 times the crash risk
- Five to six hours of sleep: 1.9 times the crash risk
- Four to five hours of sleep: 4.3 times the crash risk
- Less than four hours of sleep: 11.5 times the crash risk

While 97% of drivers told the AAA Foundation they view drowsy driving as a completely unacceptable behavior that is a serious threat to their safety, nearly one in three admit that at least once in the past month they drove when they were so tired they had a hard time keeping their eyes open.

[“Managing a healthy work-life balance can be difficult and far too often we sacrifice our sleep as a result,”](#) says Jake Nelson, director of Traffic Safety Advocacy and Research for AAA. “Failing to maintain a healthy sleep schedule could mean putting yourself or others on the road at risk.”

Symptoms of drowsy driving can include having trouble keeping eyes open, drifting from lanes, or not remembering the last few miles driven. However, more than half of drivers involved in fatigue-related crashes [experienced no symptoms](#) before falling asleep behind the wheel. AAA urges drivers to not rely on their bodies to provide warning signs of fatigue and should instead prioritize getting plenty of sleep (at least 7 hours) in their daily schedules. For longer trips, drivers should also:

- Travel at times when normally awake
- Schedule a break every two hours or every 100 miles
- Avoid heavy foods
- Travel with an alert passenger and take turns driving
- Avoid medications that cause drowsiness or other impairment

The AAA Foundation report is based on the analysis of a representative sample of 7,234 drivers involved in 4,571 crashes. All data is from the NHTSA's National Motor Vehicle Crash Causation Survey which comprised a representative sample of police-reported crashes that involved at least one vehicle that was towed from the scene and resulted in emergency medical services being dispatched to the scene.

<https://sleepfoundation.org/video-library>

<https://www.aaafoundation.org/acute-sleep-deprivation-and-crash-risk>

Nicole Michelle Lee

Nicole Michelle Lee was killed in a car accident on Jan. 26, 2008. [The driver fell asleep](#), hitting a tree going 55 MPH. There were no skids or brake marks. All five students in the car were Honor Students at Virginia Tech. They were on their way back to college from a skiing trip to Snowshoe Resort ,West Virginia. My daughter, Nicole, was in the front passenger seat of a 1999 Nissan Pathfinder headed along US 219 in Greenbrier County when the car left the road and hit the tree. She had to be cut out of the wreckage.

We were not notified for a couple hours and had not enough time to travel to that part of West Virginia or Virginia in order to see our daughter alive. All five victims were taken to Greenbrier Valley Medical Center. Nicole was later transferred to Carilion Roanoke Memorial Hospital where she was pronounced dead. The driver had a quick hearing, without our notification. He plead **NO CONTEST** and received a \$25.00 fine. I have been enraged with the laws and criminal system since that day.

— Submitted by Lynn M. Lee

June 22, 1989 –Jan. 26, 2008



Swifts' nonstop flight

The common swift flies faster and higher than other birds, earning it the nickname “greyhound of the skies.” New research reveals swifts are also astonishingly durable, [holding the record for nonstop flight](#): They can stay airborne for up to 10 months straight. Every year, swifts embark on an epic 6,000 mile migration, flying roundtrip from Europe to sub-Saharan Africa. A Swedish study tracked 19 of these tiny, torpedo-shaped birds for two years, after fitting lightweight devices that monitored how fast and high they flew as well as when they rested. The researchers found the swifts spent less than 1 percent of their migration on the ground.

[Remarkably, three of the birds never stopped flying.](#)

“They fed in the air, they mate in the air, they get nest material in the air,” researcher Susanne Akesson tells *NationalGeographic.com*.



“They can land on nest boxes, branches, or houses, but they can’t really land on the ground. “Swifts long wings and short legs prevent them from taking off from flat surfaces. These birds likely evolved to fly continuously, feeding on insects and possibly even sleeping during flight

Happy wife, healthy life

New research adds credibility to the old saying “Happy wife, happy life,” suggesting that men and women with happy spouses are **not only happier but also healthier**. For the study, researchers analyzed data compiled on nearly 2,000 middle-aged, heterosexual couples whose happiness and physical health tracked for 6 years. They found that those whose spouses had a positive outlook were **34 percent more likely to be healthy, exercise regularly and eat healthfully, and have positive outlooks themselves**. Those with a pessimistic partner, on the other hand, had more health issues and were less physically active. Why? The researchers speculate that when one member of a couple adapts good lifestyle habits, that person encourages his or her spouse to do the same. Spouses with a positive outlook also cause less stress in the relationship, the study’s lead author, William Chopik, tells Time.com. “Simply having a happy partner,” he said, “may enhance health as much as striving to be happy oneself.”



The Secret Santa police

This week, the Kansas City, Kansas, police department was on the take. Each officer in this room got at least a grand, courtesy of the anonymous, wealthy businessman known only as Secret Santa. Steve Hartman has more.



<http://www.cbsnews.com/videos/the-secret-santa-police/>