HUMAN FACTORS NEWS

Issue 2 May 2012

THEME — FATIGUE

Human Factors Training SOLUTIONS

Welcome

Welcome to the second issue of the Human Factors newsletter. This issue will focus on fatigue.

A lot of students are nearing, or have completed, all 16 modules. Well done! We recognize that this is a big commitment and we hope that you have found the training worthwhile. Certificates will be sent out shortly.

We have also added the supervisor training to our online program, so if you require any additional supervisors, let us know.

Recurrent training will be upon us before you know it, so keep filling in the threat and error reports and completing the on the job observations.

Fatigue plays a part in Jetstar aborted landing

A crew of a Jetstar flight from Darwin to Changi, Singapore, in 2010, had to conduct a missed approach after the aircraft was not in the correct landing configuration by 500ft. During the approach, the Captain became preoccupied with his mobile phone and the First Officer, operating as the pilot flying, performed a number of the Captain's duties for him.

Passing through 720ft, the crew received a master caution and a 'Landing Gear Configuration' warning. The Captain instinctively selected gear down and flaps to 'Config 3', but did not communicate his actions with the FO. The FO was confused as he was preparing to conduct a go-around.

Passing through 500ft, a "too low gear" EGPWS alert sounded signifying that the landing gear was still not secured in the down position. The flight crew conducted a go-around.

The First Officer reported feeling tired and had selected the autopilot off during the approach so he could hand fly the aircraft to wake himself up. The FO reported going to sleep at about 0130 the night before, but being woken by a phone call from housekeeping at 0430. He dozed until 0630 before getting up to go for a jog. He did not get any other sleep prior to crew sign on at 1315. The incident occurred at 0030 Singapore time.

The Captain did not report feeling fatigued, but stated the he was woken twice at about 0630 and 0830 by a fire alarm test.

The ATSB investigation found that fatigue impacted on the communication between the crew members, the omission of the landing checklist and the incorrect configuration of the aircraft.

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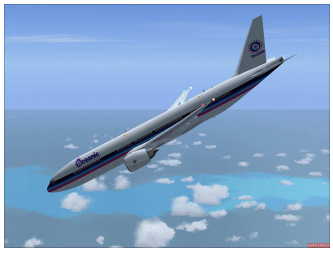
Sleep inertia leads to injuries



A report released on April 16 by the Transportation Safety Board (TSB) stated that poor rest led an Air Canada pilot to make a sudden and hazardous descent during a flight from Toronto to Zurich in January 2011. According to the TSB report, about halfway through the flight the plane's captain made a position report that awoke the first officer, who had been taking an authorised rest nearby.

In his grogginess, the report says the first officer misjudged the path of an oncoming aircraft and pushed the control column forward, resulting in an abrupt change of altitude and caused injury to 14 passengers and two flight crew.

"Sleep inertia is a very disorientating, very confusing feeling"

The first officer was dealing with "sleep inertia." "Sleep inertia is a very disorienting, very confusing feeling that occurs right as people transition from sleep to wakefulness," says Dr. Elliott Lee, a specialist in the sleep clinic at The Royal Ottawa Mental Health Centre. Dr. Lee says that sleep inertia is provoked by several factors, including how much time the person has been awake prior to the sleep period, and what stage of sleep they're in when they awake.

"If they're in light sleep and they wake up, sleep inertia is limited. But if they're in deep sleep, that's where sleep inertia will become more prominent," he says.

The pilot of the Air Canada flight was taking what is known as "controlled rest," which is essentially an unscheduled, but authorised power nap. Air Canada's flight operations manual states that each rest period should not exceed 40 minutes, to specifically avoid sleep inertia.

According to the TSB report, the first officer had been asleep for 75 minutes. Air Canada's flight operations manual also allows pilots 15 minutes after napping in order to recuperate from sleep inertia. Dr. Lee contends this may not be enough. "It would be ideal to have 30 minutes to an hour to have appropriate time to recover from the previous sleep."

Pilots & Cabin Crew protest fatigue rules

On the 14th of May this year, hundreds of pilots and cabin crew from across Europe demonstrated in front of the European Aviation Safety Agency (EASA) in Cologne, in a bid to convince the Agency that the proposed changes to fatigue rules are unsafe.
EASA is currently meeting to discuss their latest draft of pilot fatigue rules which the demonstrators believe are both unsafe and unscientific.
Jim McAuslan, the General Secretary of the British Airline Pilots Association, stated "under its current proposal for air crew on standby, EASA would require a pilot to land an airplane full of passengers around 22 hours after having woken up in the early morning."

Effect of fatigue on productivity and long term health

Two studies, published in the Journal of Occupational and Environmental Medicine have linked fatigue with health-related loss of productivity and long term health problems.

One study found that 37.9% of U.S. workers experience fatigue, costing companies approximately $136 billion in lost productivity.

The fatigue study was the first to examine the relationship between fatigue and health-related lost productive work time (LPT) in U.S. workers.

Analysis focused on five work behaviours:

• Loss of concentration;

• Repeating a job;

• Working more slowly than usual;

• Feeling fatigued at work; and

• Doing nothing at work.

The researchers interviewed a sample of 28,902 adults and concluded the following:

• The estimated prevalence of fatigue in the U.S. workforce for a two-week period was 37.9%.

• Fatigue was more prevalent in women, workers under age 50, white workers and workers earning more than $30,000 per year in “high control” positions—that is, jobs with a lot of latitude in making decisions.

• Overall, 9.2% of U.S. workers with fatigue reported LPT specifically due to fatigue in the previous two weeks. Such workers lost an average of 4.1 productive work hours per week, most of which was reflected in reduced performance at work rather than absence from work. For these workers, fatigue affected their work performance primarily by impairing their concentration and increasing the time it took them to complete tasks. And distracted workers are naturally more likely to have safety incidents.

The researchers estimated that workers with fatigue cost U.S. employers $136.4 billion per year in health-related LPT—$101 billion more than workers without fatigue.

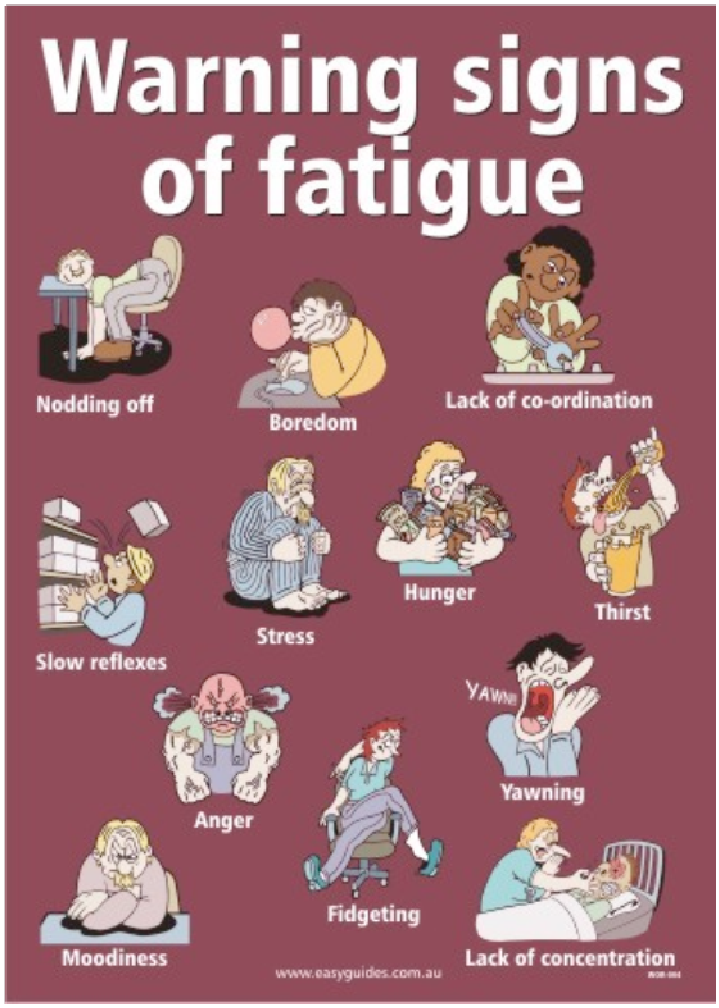
A separate study set out to analyse the impact, if any, of long work hours on workers’ health and safety. Researchers found that for workers who worked less than 60 hours per week, the injury rate was negligible. But at the 60-hour mark, the injury rate increased steadily, peaking at the 80 hours per week mark. In addition, working 60+ hours per week led to the onset of one or more diseases and to the greater likelihood of at least one acute or other work injury. In contrast, working moderate overtime (defined as 48.01-59.99 hours per week) didn’t have any significant impact on workers’ health or safety.

So while pushing workers to work harder and longer may seem to make financial sense, in reality an overworked and overtired workforce will ultimately cost the company money.

CASA’s proposed new fatigue regulations

CASA has proposed changes to fatigue management regulations in Australia which will allow operators to choose between simple flight and duty limitations or develop their own, more complex, fatigue risk management systems.

CASA is encouraging people from the aviation industry to comment of the fatigue proposals by 12 June 2012. More information is available on their website, www.casa.gov.au



Final word...

One last thought on fatigue.

We sometimes get too busy in our day-to-day life to detect fatigue in ourselves. Be a team player, look out for each other. Ask your team member, friend or spouse: Are you ok? Have you had enough sleep? Can I help you to get the sleep you need? Also, look after yourself and don't be afraid to ask for help, to swap a shift or ask your partner to look after the baby for an afternoon.