

# Pilot fatigue

Barometer





Introduction

# Pilot fatigue

Over the last few years, fatigue among pilots and cabin crew has become a genuine concern in the aviation world. Despite scientific studies showing that fatigue could jeopardise the safety of air operations, data about the prevalence of fatigue across Europe is scarce. With estimates of an approximate doubling of air traffic by 2020, quantifying this phenomenon becomes of major importance for the aviation world.

Following the example of the Norwegian public service broadcaster, NRK, which revealed very high levels of fatigue, ECA Member Associations have taken up the challenge of surveying thousands of pilots across Europe.

The intention of this Barometer is to take stock of the prevalence of fatigue in Europe's cockpits by looking into fatigue polls, conducted by ECA members.

This publication comes at a time when the European Aviation Safety Agency (EASA) has published a final proposal for Flight and Duty Time Regulations and the European Commission is to approve or amend it. We hope that the data compiled will serve as useful input for the related decision-making process.

# pilot fatigue

## Executive summary

The 2012 Barometer on Pilot Fatigue brings together several surveys on pilot fatigue carried out by Member Associations of the European Cockpit Association. Between 2010 and 2012, more than 6.000 European pilots have been asked to self-assess the level of fatigue they are experiencing.

The surveys confirm that pilot fatigue is common, dangerous and an under-reported phenomenon in Europe.

- Over 50% of surveyed pilots experience fatigue as impairing their ability to perform well while on flight duty.
- 4 out of 5 pilots have to cope with fatigue while in the cockpit, according to polls carried out in Austria (85%), Sweden (89%), Germany (92%) and Denmark (93%).
- A common indicator of the problem is that fatigued pilots are prone to fall asleep or experience episodes of micro-sleep in the cockpit. In the UK (43%), Denmark (50%), Norway (53%) and Sweden (54%) the surveyed pilots reported falling asleep involuntarily in the cockpit while flying. In the UK, a third of the pilots said to have woken up finding their colleague sleeping as well. 65% of Dutch and French pilots stated they have trouble with “heavy eyelids” during flight.
- Yet, fearing disciplinary actions or stigmatization by the employer or colleagues, 70-80% of fatigued pilots would not file a fatigue report or declare to be unfit to fly. Only 20-30% will report unfit for duty or file a report under such an occurrence.
- More than 3 out of 5 pilots in Sweden (71%), Norway (79%) and Denmark (80-90%) acknowledge to have already made mistakes due to fatigue, while in Germany it was 4 out of 5 pilots.

Being the first of its kind, this Barometer is a first step towards closing the gap between operational reality – as assessed by airline pilots – and official statistics that so far have failed to capture this phenomenon and its potential impact on flight safety.

# Why is fatigue dangerous?

It is no longer questioned whether pilot fatigue is a threat to flight safety. Ever since the 1944 Chicago Convention it is recognised that fatigue can pose a risk to the safety of air operations.

Fatigue and exhaustion are common reactions of the body and can occur in healthy individuals as a normal response to physical and mental efforts. Nonetheless, fatigue is considered a safety hazard because it reduces alertness and impairs performance. Insufficient rest and sleep opportunities, shift work and long duty hours make pilots and cabin crew particularly prone to fatigue.

Research shows that a fatigued pilot is more likely to make errors at critical moments. It is precisely at the moment when most people would feel 'dead tired' – at the end of a long working day – when pilots must be fully alert to make critical decisions and take evasive action, if necessary. Concentrating and ensuring a safe landing is, however, a difficult task, when pilots have been awake for many hours.

Fatigue has already been cited as a factor in several accidents and serious incidents in the last couple of years (e.g. Colgan Air, 2009, Air India Express, 2010). Most recently, in May 2012, an Air Berlin plane requested an emergency landing in Munich, due to pilot fatigue.

## Fatigue has been cited as a factor in several accidents and serious incidents

In 2007, an aircraft with 288 passengers on board came off the runway in Iceland when landing. The investigation showed that fatigue was to blame.

Research indicates fatigue to be a significant factor in a series of accidents and incidents where there is no direct evidence cited. It is easy for the influence of fatigue to remain hidden for two main reasons – flying whilst knowingly fatigued leaves a pilot open to prosecution or blame; and if the accident is serious enough to be fatal, the only potential evidence of fatigue dies with it.

Yet, the extent of aircrew fatigue in everyday operations has been the subject of comparatively little research in Europe.

In order to obtain a better understanding of fatigue, and its most probable causes and consequences, ECA Member Associations carried out fatigue surveys among European pilots. The surveys were conducted between 2010 and 2012 in Austria (April, 2012), Denmark (April, 2011), France (November, 2011), Germany (October, 2011), the Netherlands (June, 2012), Norway (December, 2010), Sweden (August 2011) and the UK (May, 2011).

The following Barometer does not have the intention of providing a detailed comparison of the survey results but rather to highlight and pinpoint commonalities. Despite using similar survey designs and data collection methods, several methodological constraints do not allow comparing data directly or generalising the results. Such a methodological constraint flows from e.g. the reporting period used in the surveys. It ranges from 6 months (the Netherlands) to 3 years (Germany).

Nevertheless, this Barometer takes the opportunity to map and highlight existing data and to provide valuable input on a topic where data is scarce.

## Aircrews demand safe EU rules



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Over 300 pilots and cabin crew from across Europe gathered in front of the European Aviation Safety Agency (EASA), on 14 May 2012 in Cologne. They voiced their concerns over the European Aviation Safety Agency's proposed EU law on Flight Time Limitations, which should be aimed at preventing safety risks associated with air crew fatigue.

# pilot fatigue

## A reality in Europe

The only way to recover from fatigue is to get adequate rest. A reality check shows however that this remedy is not a solution for many pilots across Europe. Long duty and standby hours, night flights and disruptive schedules often result in long times awake, sleep deprivation and are followed by insufficient rest and poor sleep opportunities. The series of surveys conducted by ECA Member Associations among 6 000 pilots in Europe illustrate the scope of the problem.

Pilots were asked to assess the level of fatigue they experience and the surveys revealed striking results. Well over 50% of the surveyed pilots experience fatigue as impairing their ability to perform well while on flight duty.

The polls show that e.g. 92% of the pilots in Germany report they have felt too tired or unfit for duty while on flight deck at least once in the past three years.

A significant number of those who felt unfit (79%) admit this was “sometimes” or “often” the case. Similar results in other European countries illustrate that this is not an isolated case. In Austria 85% of the

pilots reported that they have already been on the flight deck while actually being too fatigued for flight duty, with two thirds having experienced that condition more than once.

This percentage rises up to 89% for Swedish and 93% for Danish pilots.

With ‘only’ 67% of the pilots experiencing fatigue, the Netherlands has the lowest figure among the surveyed countries. Yet, this means that still 2 out of 3 pilots suffer from fatigue and extreme tiredness.

# 92%

of the pilots in Germany report to have felt too tired or unfit for duty while on flight deck

# 67%

of the pilots in the Netherlands have to cope with fatigue

# 78%

of the pilots in Norway say to have at least once been too tired while on duty

Figure 1 shows the level of pilot fatigue across Europe and the percentage of pilots stating that they have either fallen asleep without planning or experienced micro-sleep episodes whilst on duty.

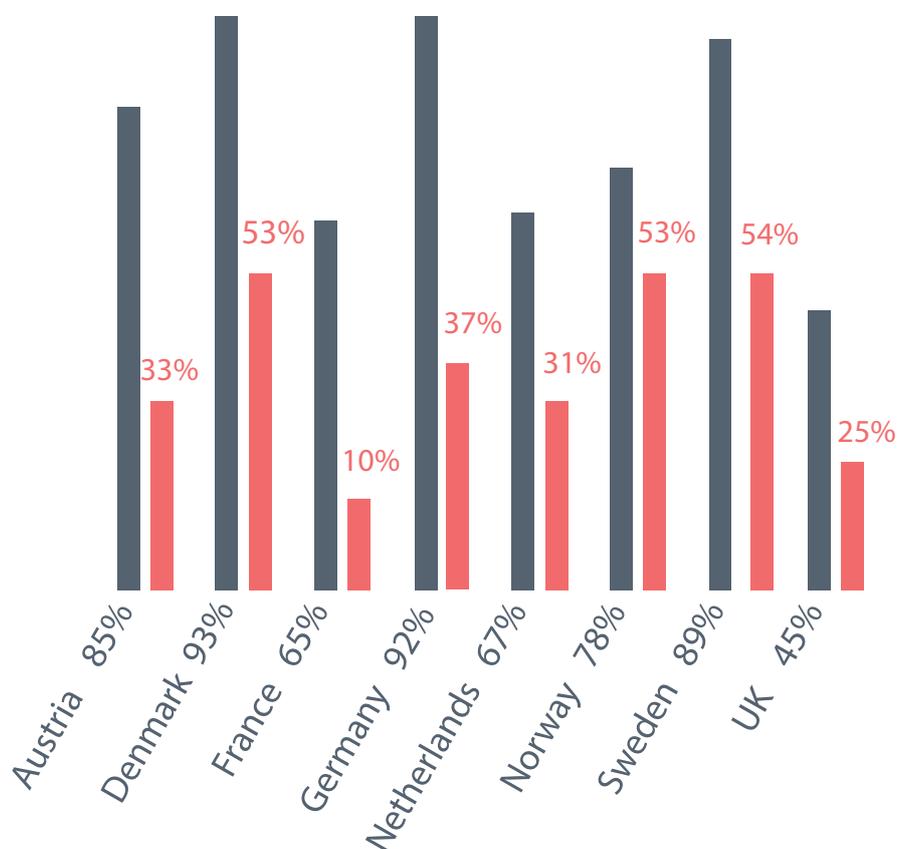


Figure 1: Percentage of pilots experiencing pilot fatigue (grey scale) and dozing off and/or experiencing micro-sleeps in the cockpit (red scale)

# Dozing off

Overall, more than a third of the respondents state they have fallen asleep in the cockpit without agreeing this with their colleague in advance. The idea of pilots napping at 30,000 feet may sound shocking, but it illustrates the severity of the problem.

One out of three pilots in Austria (33%), Germany (37%) and the Netherlands (31%) admit to have taken a nap in the cockpit.

A third of the pilots in France have experienced moments of micro-sleep. This is a brief involuntary episode of loss of attention. Micro-sleeps (or micro-sleep episodes) can become dangerous when they occur in situations which demand constant alertness, such as piloting.

In Denmark, Norway and Sweden more than 50% of the surveyed pilots reported

falling asleep in the cockpit. A UK study found that 43% of the pilots had involuntarily dozed off while flying. A third of these said they had woken to find their co-pilot sleeping as well.

While some airlines tolerate a short nap in agreement with the second pilot in exceptional situations as a tactical measure to combat unexpected fatigue, this so-called "napping policy" is regarded as an emergency measure, not substitute for rest.

The examples highlighted in the surveys do not occur under such a policy, but are occurring without the intention or agreement of either pilot.





*Only*  
**20-30%**

of the pilots would  
actually file a report  
if feeling too tired on  
duty.

# Under-reporting

Despite the high prevalence of this phenomenon, pilot fatigue continues to be significantly under-reported. Results show that only 20 to 30% of the pilots have actually filed a report when they felt unfit for duty. This means that 70-80% did not report when fatigued.

Only in the UK half of the pilots have reported fatigue when it occurred, which leaves 45% of such occurrence unreported.

Such under-reporting of fatigue has been confirmed by an independent survey of 50 UK Aviation Medical Examiners in April 2011. The vast majority (70%) of the Aviation Medical Examiners believe that pilots are reluctant to report fatigue within their company.

The reasons for under-reporting may vary

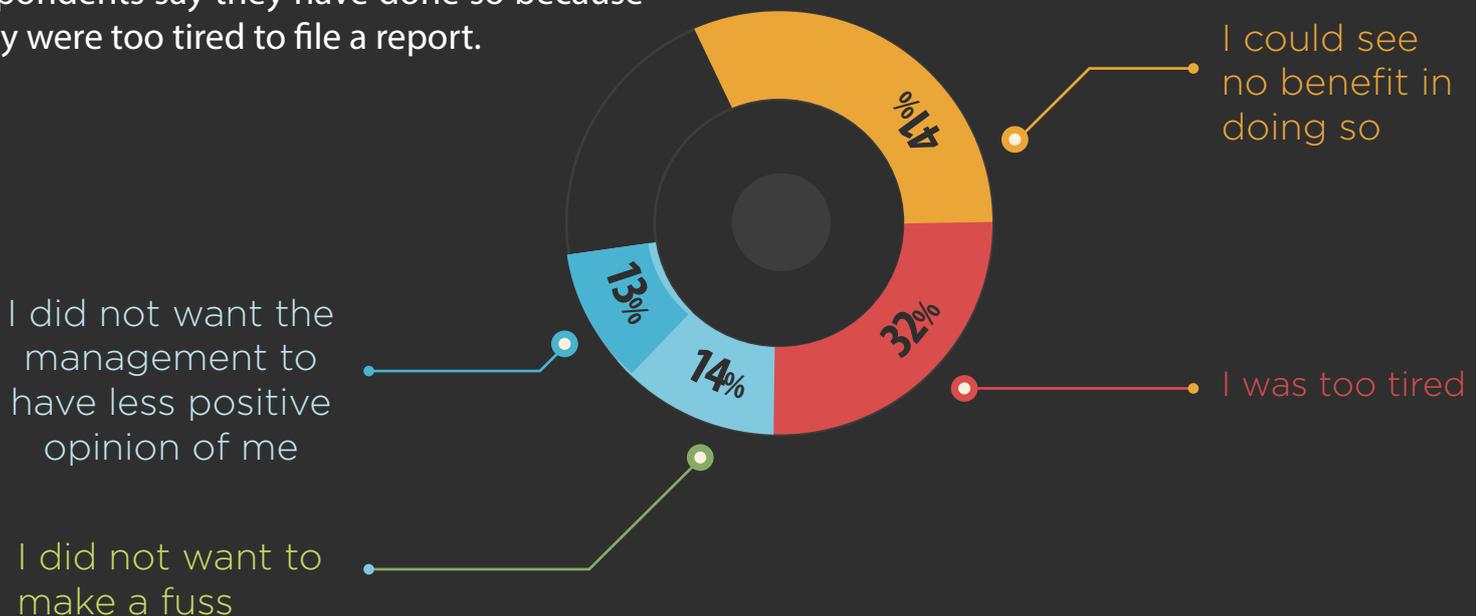
from the simple inconvenience of filing a report at the end of a long exhausting work day to a fear of disciplinary actions or fear of stigmatization by the employer or colleagues.

Some of the reasons for under-reporting have been explored among UK pilots. Among the most common barriers to reporting were the feeling that reporting did not change or achieve anything, and fear of stigmatization by management. Pilots know well that a report could have a negative impact on their overall performance evaluation.

Another striking aspect is that those who have already filed a report, do not feel motivated to do it again. It could either be because they have already felt negative consequences, or have seen no results.

Figure 2: Reasons for under-reporting pilot fatigue (UK survey)

Responding to why pilots have not submitted a fatigue report, one third (32%) of the respondents say they have done so because they were too tired to file a report.



# Pilot fatigue

# Errors & incidents

Fatigue is known to reduce the physical and mental ability to operate safely. Previous studies have shown that fatigue affects cognition and leads to an impairment of performance, which is difficult to self-assess.

When tired, pilots are prone to have increased reaction times, short term memory loss, impaired judgment, poor decision making and decreased visual perception. Critically, they may not be aware of the extent of this.

More than a half (52%) of UK Aviation Medical Examiners think that it is unlikely a routine medical check would pick up on pilots suffering from fatigue that might impair the safe performance of their duties.

Scandinavian countries emphasize similar concerns. More than 3 out of 5 pilots in Sweden (71%), Norway (79%) and Denmark (80-90%) have a similar experience with mistakes related to fatigue.

Wrong setting of switches, using wrong data for performance calculations, failure to follow procedures in safety checklists, miscommunications or missing air traffic control instructions are examples of what these mistakes might be. Seemingly benign such mistakes can have significant

## Over 3 out of 5 pilots in Sweden, Norway and Denmark made mistakes due to fatigue

To assess the impact of fatigue, the surveyed pilots were asked to estimate the extent to which fatigue affects the safety of flight operations.

A large number of pilots attributed errors they have been involved in directly to fatigue. The surveys uncover that a majority of pilots declare to have made a mistake as a direct consequence of fatigue.

93% of the pilots in Germany acknowledge that they have already made mistakes due to fatigue. The survey results in the

consequences on the safety of flight operations.

For example, in Norway (34%), Denmark (43%-54%), Germany (14%), Sweden (21%) and France (55%) pilots acknowledge that fatigue has played a role in an incident or closely-avoided accident they were involved in.

These numbers validate the findings of the Aviation Medical Examiners survey in the UK. 80% of the AMEs surveyed believe fatigue is a medical issue and mention



it as one of the two systems areas with the greatest potential to cause an airline accident .

Similar concerns were also highlighted by the National Sleep Foundation's (NSF) in 2012. According to their Sleep in America poll, a significant number of transportation professionals say that sleepiness has caused safety problems on the job, with one in five pilots (20%) admitting to having made a serious error due to sleepiness.

In addition to direct consequences for the safety of flight operations, fatigue has consequences for the work-life balance of pilots and their ability to rest. A tired pilot needs time to recover from fatigue. The UK study among pilots revealed however that sleep problems are correlated with fatigue. As a consequence, fatigue can become self-perpetuating. Pilots may eventually end up in the vicious circle of being too tired to adequately rest or sleep, which in its turn will leave them even more exhausted.

This is confirmed by the Austrian survey, which highlights that many pilots experience sleep problems.

# Pilot fatigue

# Causes

There are many possible causes of fatigue. Nevertheless, pilot fatigue is most commonly attributed to irregular sleep and work patterns, long flying hours, long times awake, early starts, night duties, multiple sectors and flying into 'commander's discretion'.

The human body is programmed to sleep during the night and to be awake and active during the day.

related to the current Flight and Duty Time Limitations regulation, night flights and excessive night duties are among the most common disrupters of rest pointed to by respondents in Austria and Germany.

The study among British pilots shows that fatigue prevalence is associated with the number of sectors, flying and duty hours or discretion frequency.

Pilots who flew more than an average

## 69% of the French pilots identify night flights as a serious contributor to fatigue

According to the surveys among pilots, night flights or a series of night flights are major contributors to fatigue.

For example, in France almost 70% of the pilots identify night flights as a cause of fatigue. Nearly half of the respondents in Germany agree that night flights are one of the major causes of pilot fatigue.

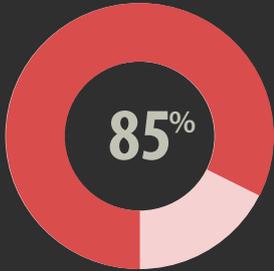
When asked to identify the major problems

number of sectors or required commander's discretion more than once a month were significantly more likely to be fatigued. Fatigue was also higher among those who required commander's discretion on their last flight duty.

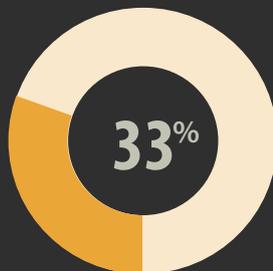
## What is causing fatigue?

- ✈ 67% of French pilots identify a series of morning departures as problematic and contributing to fatigue.
- ✈ 88% of the pilots in Denmark estimate the rest between work periods as insufficient and 83 % reiterate on the long working hours.
- ✈ 69% of the pilots in Germany stated they were too tired to perform a full flight duty after having been called out of standby
- ✈ In addition to a series of early or late duties, in the top 3 of the Netherlands survey, pilots note that there often is a lack of resting places/possibilities.
- ✈ More than 50% of the pilots polled in France have similar concerns. The lack of adequate rest areas is considered problematic and contributing to fatigue.

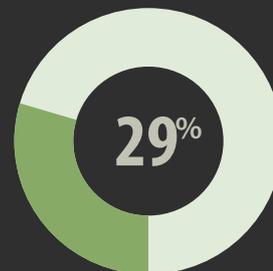
# pilot fatigue in **Austria**



85% of the pilots were too fatigued for flight duty while on flight deck



33% dozed off or fell asleep in the cockpit, without agreeing with their colleague in advance



29% reported unfit for duty due to pilot fatigue

Intrigued by polls showing Scandinavian pilots to be exhausted to the point where they involuntarily fell asleep while on flight duty, the Austrian Cockpit Association commissioned a survey to examine whether a similar problem exists in Austria.

The study was undertaken by Dr. Alois Farthofer of the Institute for Personnel and Organizational Development at the Johannes Kepler University of Linz, Austria.

## Methodology

The survey was conducted in April 2012 using an online questionnaire, based on previous designs used in several Scandinavian countries. The online questionnaire program automatically generated a unique access code for each of the 422 participants. The data has been anonymously collected and analysed.

## Main results

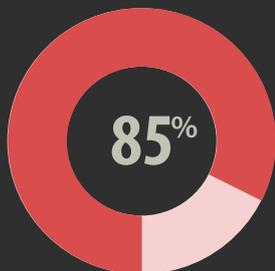
Summing up, the results show that the problems identified through scientific research are confirmed by pilots' experience in day-to-day flight operations.

85% of pilots reported that they have already been on the flight deck while actually being too fatigued for flight duty, with two thirds having experienced that condition more than once.

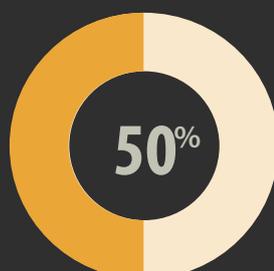
One third of pilots reported that they have fallen asleep at the controls without prior coordination with the other pilot (under a "controlled napping" procedure). Nearly a half of those affected reported more than one such event.

For more information visit: [www.aca.or.at](http://www.aca.or.at)

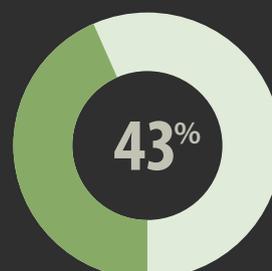
# pilot fatigue in Denmark



More than 85% of the pilots were too fatigued for flight duty



50% dozed off or fell asleep in the cockpit, without prior agreement with colleague



43% were involved in near incidents due to fatigue

## Methodology & main results

In 2011, the Danish Airline Pilots Association (DALPA) conducted a survey on pilot fatigue.

More than 575 pilots filled in an online questionnaire and shared anonymously their insights on fatigue and the pilots' work conditions. An external polling company gathered and analysed the data.

More than 85% of the pilots declared that at least once they felt so tired that they should not have been on cockpit duty. Nine out of ten say they have made mistakes in the cockpit as a direct consequence of fatigue.

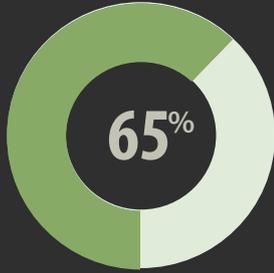
Half of the respondents (50%) has at least once dozed-off or fell asleep in the cockpit without prior agreement with their colleagues. Almost as many – 43% – state to have been involved in incidents or near-incidents because either the respondent or someone else on the crew was tired or worn-out.

Yet, one of the problems revealed by the survey is that pilots very often do not report these occurrences, partly due to the fatigue itself, partly due to a fear of repercussions from their employers.

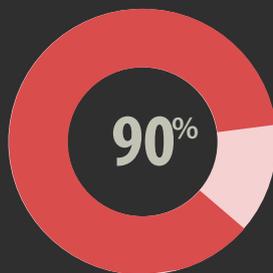
More than a half (53%) of the pilots has never reported unfit for flight due to fatigue.

For more information visit: [www.dalpa.dk](http://www.dalpa.dk) & [www.politiken.dk](http://www.politiken.dk)

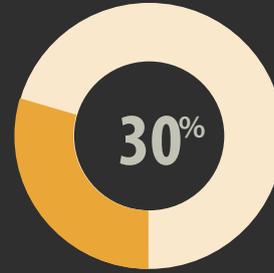
# pilot fatigue in France



65% of the pilots have felt quite tired or exhausted in the last working month



90% of those experiencing fatigue attribute it to their profession



30% have often and sometimes experienced moments of micro-sleeps

## Methodology

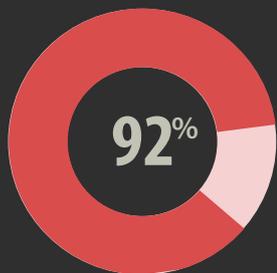
To measure the level of fatigue of airline pilots and its impact both in terms of physiological psychological safety of flights, SNPL France ALPA and OpinionWay, carried out a survey among 800 French pilots. SNPL France ALPA officials made an internal announcement that the study would be conducted and asked its members to complete a detailed questionnaire on line. The answers collected on line were then processed, compiled into a database and analysed.

## Main results

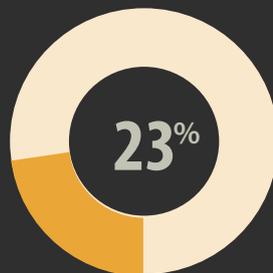
The results confirmed the conclusions already made by other European surveys. 90% of the pilots interviewed declare to be tired or exhausted and believe that the cause of their fatigue is directly related to their profession. A series of night flights, a series of morning departures and night flights are the top 3 causes of fatigue for French pilots. As a result, approximately half of the pilots had a feeling of moving as if in "slow motion". About 65% had heavy eyelids during a flights, 30% had often and sometimes experienced micro-sleeps during flights. A significant majority of 68% of the surveyed pilots had at least once experienced micro-sleep episodes.

For more information visit: [www.snpl.com](http://www.snpl.com)

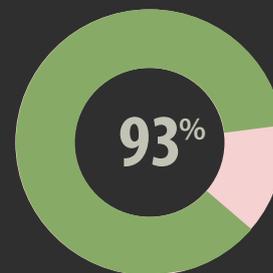
# pilot fatigue in Germany



92% of the German pilots have experienced fatigue



23% of the respondents had filed a fatigue-report



93% had made a mistake in the cockpit due to fatigue

## Methodology & main results

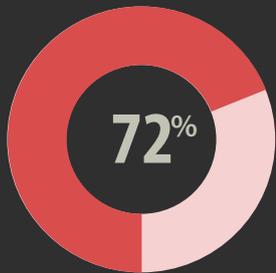
The new EU rules on Flight Time Limitations were the driving force for Vereinigung Cockpit (VC) to measure the levels of fatigue among its members. 2 807 German pilots in total participated in the online survey conducted by VC.

The survey revealed that exhaustion and fatigue are a major problem for 92% of the respondents. Due to high fatigue levels, pilots admit they should not have been in the cockpit and in some instances (14%) they could directly attribute a mistake they made to fatigue.

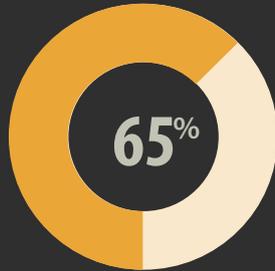
More than a third of the respondents also admit to have fallen asleep at least once without the prior agreement with the colleague in the past three years. Yet, only a fifth of the respondents (23%) have taken the opportunity to file a fatigue report.

For more information visit:  
[www.flugdienstzeiten.de](http://www.flugdienstzeiten.de)

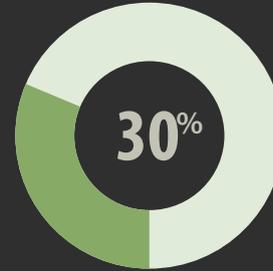
# pilot fatigue in the **Netherlands**



72% of the pilots  
have regularly felt not  
rested after a normal  
night sleep



65% have "heavy  
eyelids" during a flight



30% have fallen into a  
micro-sleep

## Methodology & main results

A recent survey among 660 Dutch pilots carried out by the Vereniging van Nederlandse Verkeersvliegers (VNV) reveals similar results about pilot fatigue as in other countries.

Using the survey design used by the Scandinavian countries, VNV has in addition looked into the general job satisfaction, pilot fatigue, health and sleep problems and fatigue-related incidents.

The majority of the respondents are employed by major airlines, such as KLM, Transavia, Martinair and ArkeFly.

Nevertheless, working for a major airline company did not have any significant

correlation to better rest and sleep opportunities.

87% of the pilots believe their profession is fatiguing.

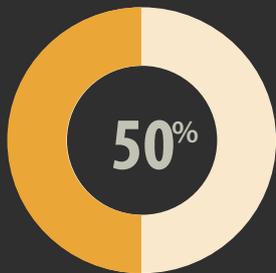
72 % regularly feels not rested after a normal nights' sleep and 65% have trouble with "heavy eyelids" during a flight. Approximately one third of the respondents have fallen into a "micro-sleep" during work.

Dutch pilots have also stated to have been involved or nearly avoided an incident or an accident 45 times in the past 6 months. In half of these events, fatigue was to blame.

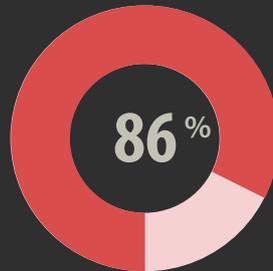
For more information visit:

[www.vnv-dalpa.nl](http://www.vnv-dalpa.nl)

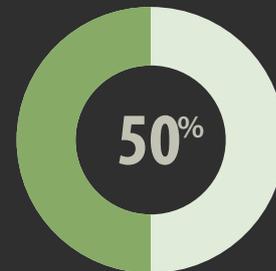
# pilot fatigue in **Norway**



50% of the pilots have once, rarely or often dozed off in the cockpit



86 % have often or rarely felt so tired that they shouldn't have been doing cockpit duty



50% have at least once fallen asleep while in the cockpit

## Methodology & main results

Norway was the first country to examine the fatigue prevalence among pilots. A survey conducted by the Public service provider, NRK, was a first step to gain understanding on pilot fatigue in Europe.

Although it was initiated and carried out by NRK, the pilots' association in Norway, Norsk Flygerforbund, has been closely involved.

It distributed the questionnaire to the pilots and supported NRK with technical expertise on pilot fatigue.

The survey took place in 2010 and collected responses from 389 pilots. The results broke the silence about pilot fatigue and uncovered that half of all Norwegian airline pilots have

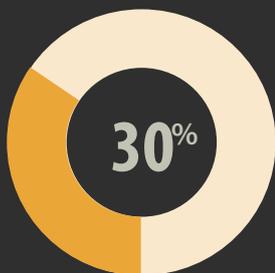
fallen asleep in the cockpit. 2% said that they "often" fall asleep behind the controls without alerting their co-pilot, while 48% said they have dozed off "once" or "rarely".

When asked whether it has happened that pilots would feel so tired that they shouldn't be doing cockpit duty, more than 86% say to have often or rarely experienced extreme tiredness.

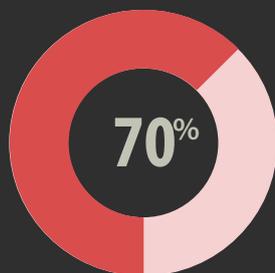
This survey was the wake-up call for many ECA Member Associations to assess the situation in their own country.

For more information visit: [www.flyger.no](http://www.flyger.no)

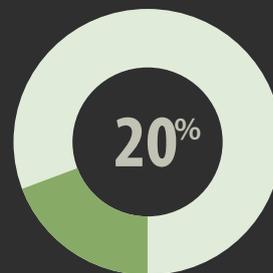
# pilot fatigue in **Sweden**



Every third pilot would now and then fall asleep due to fatigue



Seven out of every ten pilots made mistakes that were the result of fatigue/tiredness



One out of five pilots experienced an incident or a near-incident that could be attributed to fatigue

## Methodology

Axánd Consulting Agency, Stockholm, Sweden, was contracted by SweALPA in August 2011 to undertake a study of the Swedish pilots working environment and how they experienced working under the current Subpart Q regulations.

It was decided that the study would be carried out by asking all SweALPA members to reply to a web based questionnaire. The Swedish study was modelled after similar studies carried out in other Scandinavian countries.

A total of 625 members responded to the study during the period 23 August – 13 September 2011.

## Main results

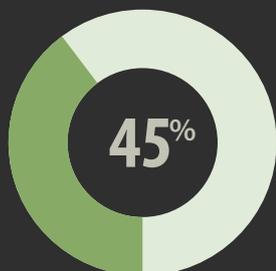
A significant majority of pilots who participated in the study felt that the limitations contained in the current FTL legislation pose risks and do not contribute to maintaining a high level of flight safety. Most worrying to pilots were too long duty and standby hours and they all too often felt fatigued and worn out while on duty.

The study found that it is normal for pilots to experience fatigue while in the cockpit with one in three pilots admitting that they now and again involuntarily fall asleep without agreeing with the other crew members.

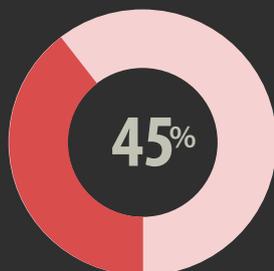
For more information visit:

[www.swealpa.se](http://www.swealpa.se)

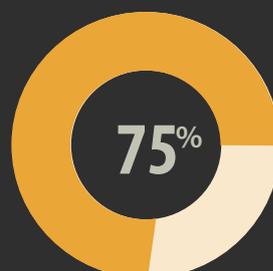
# pilot fatigue in the UK



45% of the pilots were suffering from clinically relevant levels of fatigue



45% felt that their abilities in flight were compromised by fatigue regularly



More than 75% did not file a report even when fatigued

## Methodology

The British Association of Airline Pilots, BALPA, has contributed to the understanding of pilot fatigue, stress and other factors. Together with the UCL Psychobiology Group, BALPA carried out a survey of fatigue and well-being among commercial airline pilots. A postal survey was sent to BALPA members working for one airline.

The survey generated 492 responses across four countries, an overall response rate of 47%. Almost two thirds of respondents were Captains.

## Main results

Survey responses indicate that 45% of respondents were suffering from clinically relevant levels of fatigue. A similar proportion of pilots felt that their abilities were compromised by fatigue in flight more than once a month. Over three quarters of pilots admitted that there were occasions within the last six months when they did not file a fatigue report form, but thought they should have done so. Fatigue, sleep disturbances and symptoms of anxiety and depression were more prevalent in pilots with a higher work index, sectors, flying hours and captain's discretion frequency.

For more information visit:  
[www.keepflyingsafe.co.uk](http://www.keepflyingsafe.co.uk)

# pilot fatigue

# Conclusion

This Barometer on pilot fatigue sheds light on the extent of pilot fatigue in Europe, by assessing eight surveys carried out by ECA Member Associations, covering a total of over 6.000 airline pilots in Europe.

The Barometer shows that pilot fatigue has become a reality in Europe's cockpits.

It is more wide-spread than expected and at the same time it is significantly under-reported by pilots themselves.

Fatigue impairs the crews' ability to operate safely; the high number of pilots falling asleep involuntarily in the cockpit is just one indicator for the extent of the problem and the impact it has on those who operate the aircraft. With many pilots stating that they made mistakes due to fatigue and that fatigue played a role in incidents they were involved in are further indicators.

The Barometer highlights key aspects

of the operations that are considered particularly fatiguing, with night duties, disruptive schedules, long flight duties and long work days (e.g. standby + a flight duty) being just some examples. These findings largely confirm what scientific and medical research has identified as particularly fatiguing aspects of air operations, and hence aspects that need particular attention and risk management.

More data collection among air crew will be necessary to get a full picture on the prevalence fatigue on board of European aircraft and its impact on the safety of airline operations and their passengers. This Barometer is a first step into that direction.

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## More information on pilot fatigue:

[www.dead-tired.eu](http://www.dead-tired.eu)  
[www.eurocockpit.be/pages/flight-time-limitations](http://www.eurocockpit.be/pages/flight-time-limitations)

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# About ECA

The European Cockpit Association (ECA) was created in 1991 and is the representative body of European pilots at European Union level. It represents over 38,000 European pilots from the National Pilot Associations in 37 European states.

For more information on the surveys, please contact:

**Austria:** Austrian Cockpit Association (ACA)

**Denmark:** Danish Airline Pilots Association (DALPA)

**France:** Syndicat national des Pilotes de Ligne (SNPL)

**Germany:** Vereinigung Cockpit (VC)

**Netherlands:** Vereniging van Nederlandse Verkeervliegers (VNV)

**Norway:** Norsk Flygeerforbund (NF)

**Sweden:** Svensk Pilotförening (SPF)

**UK:** British Airline Pilots Association (BALPA)

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