

# 在能力降低時飛行？

## 對於在飛機事故中死亡的飛行員的研究發現 使用合法與非法的藥物持續增加

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根據美國NTSB一份對駕駛員因使用藥物而增高飛行中與藥物相關能力降低的整體風險提出警告的研究報告，在1990年到2012年間，因飛機事故死亡的飛行員對可能造成能力降低的合法藥品與非法藥物的使用有極顯著的增加。

NTSB強調該報告並未對在飛機失事當時，對於潛在降低能力藥物檢測呈陽性的飛行員實際上是在能力降低的狀態做成結論。

這些數據是採集自6677名因事故喪生的飛行員的失事後毒物學檢測；而此數字則是在所研究的期間內，美國民航包含飛行員死亡的失事事件的87%。這份研究所分析的風險類別包括潛在降低能力的藥品、潛在降低能力的狀況、管制藥物與非法藥物。被研究的飛行員大部分是屬於普通航空，因為根據這份報告所述，跟航空運輸業相比，普通航空的飛行員更常涉及死亡失事事件，而這也是九月初NTSB舉辦的一場公聽會的主題。

這些數據儲存在由美國FAA所屬的民用航空醫學機構所維護的毒物學資料庫與NTSB的航空事故資料庫中，統計出自1990年到2012年間涉及死亡事故的飛行員對非法藥物、處方藥品與市售成藥使用的增加。

此研究特別指出苯海拉明，一種據稱會“使人嗜睡的抗組織胺劑並且是很多市售抗過敏藥劑、感冒藥與助眠劑中的主要成分”，是最普遍被這些失事飛行員使用的潛在降低能力藥物。

“對每位飛行員來說，從這份報告所得到的啟示是審慎用藥，因為它們可能影響你的飛行，”NTSB代理主席Christopher A. Hart說：“很多市售成藥與處方藥物都有降低表現的可能性，所以飛行員對於確保他們的能力不被減損必須保持警覺。”

NTSB強調目前並無法判斷是否有更多飛行員在能力降低的狀況下飛行，並補充說：“然而這份報告指出更多的用藥將導致能力降低的風險增加，它也強調需要更進一步的研究以更清楚了解用藥與事故風險之間的關係。”



NTSB說在整個研究的期間內，飛行員能力降低被引證為所有死亡事故中百分之3的或然原因或導致因素。

研究發現在納入調查的6677名飛行員中，潛在降低能力藥物檢測呈陽性的部分，從1990年的大約11%增加到2012年的大約23%(見圖一)。而對於那些潛在降低能力狀況、使用管制藥物與非法藥物的部分也呈現增加的情形。

### 飛行員的特性

NTSB說沒有任何牽涉到死亡事故的大型商用噴射機飛行員被檢測出最近使用非法藥物，但有些則有使用潛在降低能力的處方用藥。

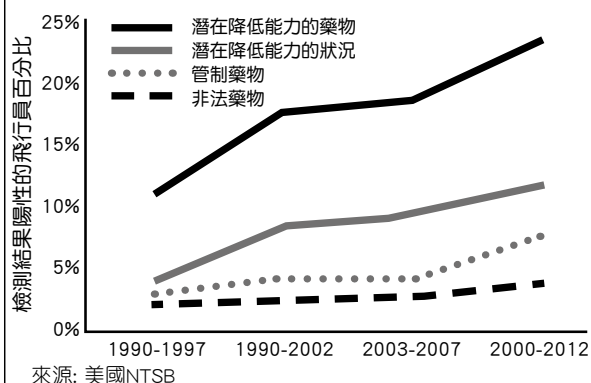
在全部被研究的飛行員中98%是男性，年齡介於16到92歲，平均年齡則從研究開始的1990年的46歲到研究結束的2012年的57歲。

47% (3144名飛行員)持有私人駕駛員執照，34% (2241位)持有商用駕駛員執照，而15% (983位)則持有航空運輸駕駛員執照。較小的百分比則是學習飛行員、運動/休閒飛行員或無照駕駛的人員。

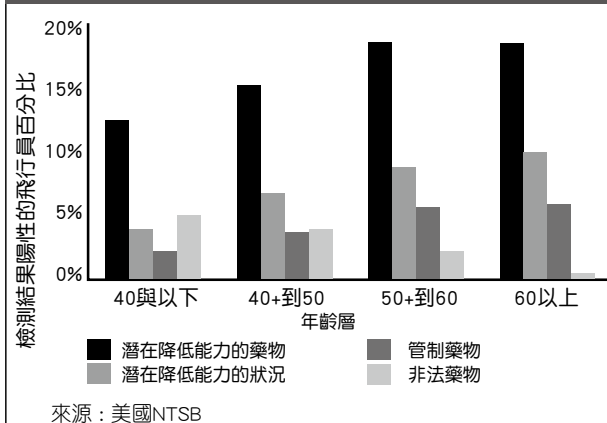
若依年齡層來分別，年紀較大的飛行員被發現比較可能在服用潛在降低能力的藥物時飛行，跟40歲以下的12%(見圖二)相比，年齡在50到60歲有18%服用此類藥物，而60歲以上也有相同的比例。

NTSB說40歲與以下的年齡層最常被發現使用非法藥

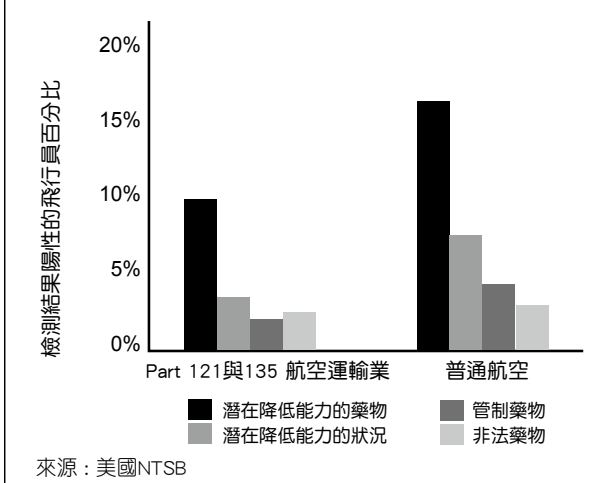
圖一：依類別的毒物學調查結果，1990-2012



圖二：依年齡層的毒物學調查結果，1990-2012



圖三：依飛航作業形式的毒物學調查結果，1990-2012



物，大約將近5%檢測呈陽性，而60歲以上的群組則最不可能(低於1%)被檢測出非法藥物。

NTSB說使用非法藥物”在所有被研究的飛行員中相對的不普遍”，佔在失事中死亡飛行員的比例從1990年的2.4%上升到2012年的4%，而最近10年間則因大麻的使用

而有較大的增長。

在所有研究分析的類別中，普通航空飛行員則比商用航空飛行員較易被檢測出陽性反應(見圖三)。

除此之外，NTSB說體檢證照過期或是無體檢證飛行的也比持有有效體檢證的更容易被檢測出陽性結果。

該機構說：“飛行員無體檢證飛行所造成的事故風險並無法準確界定，因為[FAA]並未統計這些飛行員的數目或飛行活動”，雖然如此，它仍強調越來越多的無體檢證飛行員“可能自行決定他們的身體狀況是否適合飛行，包含在飛行時使用藥物，也未定期與航空醫學檢查員互動。”

這份研究認為FAA並未對個別藥物在飛行時使用的安全與否提供適當的資訊。

## 建議

建議包含一項對FAA的呼籲-“制定、公佈並定期更新資訊來教育飛行員關於經[FAA]對致死性傷害飛行員所做毒物學檢測結果證實有潛在降低能力風險的藥物，也讓飛行員知道是否有其他影響較低的藥物可用。”

另一項建議則認為FAA應該要求那些不需要體檢證的飛行員(例如運動/休閒飛行員)定期通知主管機關他們是否還是活躍的飛行員並提供最近的飛行時數。

NTSB說FAA也必須主導一項研究來判斷未牽涉事故的飛行員對市售成藥、處方藥物與非法藥物的使用程度，並與前述對事故死亡飛行員的研究結果比較“以評估在飛行時使用那些藥物的安全風險”。

另建議州政府須制定規則讓那些提供醫療服務的機構，對於那些他們開出例如疼痛殺手之類管制藥品的病人，必須告知這些藥品可能影響他們的身體狀況與對於任何形式交通工具的操作能力，該建議說州政府應該在現行發給醫療機構與藥局的時事通訊或其他通訊中包含類似的訊息。

最後一項給FAA的建議是該機構應該對不論任何形式的飛航作業的飛航人員制定出清楚的大麻使用政策。

這份研究報告的作者們形容他們的工作是：“對藥物效用、對身體狀況潛在的影響與一直以來交通事故的風險間特定關係的早期探索”，並表示需要更多的研究來加深對藥物使用與事故風險間的關係的了解。✈

譯自 Aero Safety Worle Oct 2014

# Flying While Impaired ?

## Study of pilots who died in aircraft accidents finds increasing use of legal and illegal drugs.

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The use of potentially impairing medications and illegal drugs by pilots killed in aircraft crashes increased dramatically between 1990 and 2012, according to a study by the U.S. National Transportation Safety Board (NTSB), which warned that growing use of the substances heightens the overall risk of drug-related pilot impairment during flight.

The NTSB emphasized that the study did not conclude that pilots who tested positive for impairing drugs were actually impaired at the time of the crash.

Data were gathered through post-accident toxicology testing of 6,677 pilots who were killed in aircraft accidents; the number represents 87 percent of the U.S. civil aviation accidents involving a pilot fatality during the years of the study. The risk categories analyzed by the study were potentially impairing drugs, potentially impairing conditions, controlled substances and illegal drugs. Most of the pilots studied were general aviation pilots because general aviation aircraft are more frequently involved in fatal accidents than those used in air carrier operations, according to the study, which was the subject of an NTSB public hearing in early September.

The data, stored in the toxicology database maintained by the U.S. Federal Aviation Administration's



(FAA's) Civil Aerospace Medical Institute and the NTSB aviation accident data- base, measured an increase from 1990 through 2012 in use of illegal drugs, prescription medications and over-the-counter (OTC) preparations by pilots in fatal crashes.

The study singled out diphenhydramine, described as a "sedating antihistamine and an active ingredient in many OTC allergy formulations, cold medicines and sleep aids," as the most commonly used potentially impairing drug used by the accident pilots.

"The key take-away from this study for every pilot is to think twice about the medications you're taking and how they might affect your flying," said acting NTSB Chairman Christopher A. Hart. "Many over-the-counter and prescription drugs have the potential to impair performance, so pilots must be vigilant to ensure that their abilities are in no way compromised."

The NTSB emphasized that it could not be determined whether more pilots actually are flying while impaired, adding, "While the study noted that the greater use of medications pointed to an increasing risk of impairment, it stressed that further research is needed to better understand the relationship between drug use and accident risk."

Throughout the study period, pilot impairment was

cited as the probable cause or a contributing factor in about 3 percent of all fatal accidents, the NTSB said.

The study found that of the 6,677 pilots included in the study, the proportion who tested positive for potentially impairing drugs had increased from about 11 percent in 1990 to about 23 percent in 2012 (Figure 1). Increases also were recorded in the proportion of those who tested positive for having a potentially impairing condition, use of controlled substances and use of illegal drugs.

## Pilot Characteristics

None of the pilots involved in fatal crashes of large commercial jets had tested positive for recent use of illegal drugs, but some had used potentially impairing medications, the NTSB said.

Ninety-eight percent of all the pilots studied were male, ranging in age from 16 to 92, with an average age that increased over the life of the study from 46 in 1990 to 57 in 2012.

Forty-seven percent (3,144 pilots) held private pilot certificates, 34 percent (2,241) had commercial pilot certificates, and 15 percent (983) had airline transport pilot certificates. Smaller percentages were student pilots, sport/recreational pilots or people flying without a license.

Broken down according to age, the oldest pilots were found to be most likely to have been flying with potentially impairing drugs in their systems. About 18 percent of pilots between age 50 and 60 and a similar percentage of those over 60 had taken such drugs, compared with about 12 percent of pilots age 40 and younger (Figure 2).

Illegal drugs, however, were most frequently found in pilots in the age 40 and younger group, the NTSB said, noting that nearly 5 percent of those in that age group tested positive. Pilots over age 60 were least likely (less than 1 percent) to have tested positive for illegal drugs.

Among pilots of all ages, illegal drug use was “relatively uncommon among the study population,” with about 4 percent of those killed in accidents testing

Figure 1

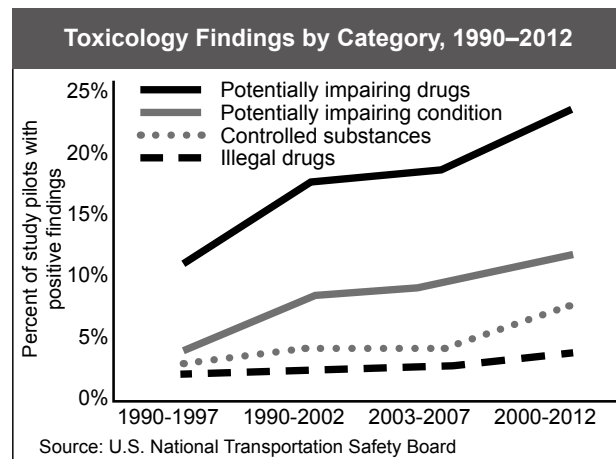


Figure 2

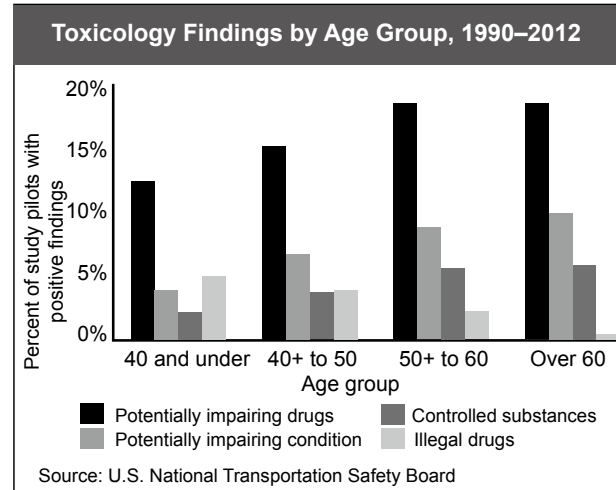
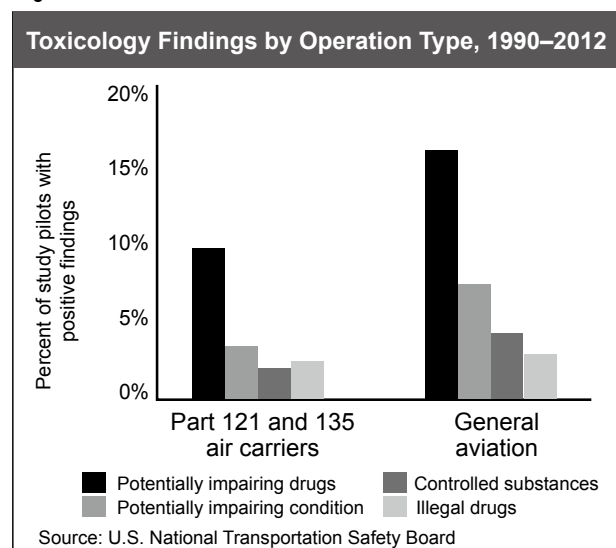


Figure 3



positive in 2012, up from 2.4 percent in the early 1990s, the NTSB said. The increase was attributed largely to growth in marijuana use over the last 10 years.

In all categories analyzed by the study, general aviation pilots were more likely than their commercial counterparts to have tested positive (Figure 3).

In addition, pilots with expired medical certificates and those flying without a medical certificate were more likely than those with valid medical certificates to have had positive test results, the NTSB said.

"The accident risk for pilots flying without a medical certificate cannot be accurately determined because the [FAA] does not collect information about the number of these pilots or their flight activity," the agency said. Nevertheless, it added that the number of pilots flying without a medical certificate is increasing and that those pilots "will likely make decisions about their medical fitness to fly, including use of drugs while flying, without periodic interaction with an aviation medical examiner."

The study concluded that the FAA does not provide adequate information for pilots to determine whether individual drugs are safe or unsafe to take while flying (ASW, 6/14, p. 20).

## Recommendations

Recommendations included a call for the FAA to "develop, publicize and periodically update information to educate pilots about the potentially impairing drugs identified in [FAA] toxicology test results of fatally injured pilots, and make pilots aware of less impairing alternative drugs if they are available."

An accompanying recommendation said that the FAA should require pilots who are permitted to fly without medical certificates (such as sport/ recreational pilots) to periodically inform the agency about whether they remain active pilots and to provide a summary of recent flight time.

The FAA also should conduct a study to determine the extent of usage of OTC, prescription and illegal drugs by pilots who have not been involved in accidents and compare those findings with the results of studies of pilots who have been killed in aircraft accidents "to assess the safety risks of using those drugs while flying," the NTSB said.

Recommendations to state governments said that

they should develop guidelines calling on health care providers to talk to the patients for whom they prescribe controlled substances as painkillers about how the drugs are likely to affect their medical condition and their ability to safely operate any type of vehicle. The states should include similar information in existing newsletters and other communications with health care providers and pharmacists, the recommendations said.

A final recommendation to the FAA said the agency should develop "a clear policy regarding any marijuana use by airmen, regardless of the type of flight operation."

The study's authors described their work as "an early step toward understanding the specific relationships among a drug's effects, the effects of the underlying medical condition and the risk of a transportation accident over time," and said more research will be required to increase understanding of the relationship between drug use and accident risks. ✎

*From Aero Safety Worle Oct 2014*