

Health Promotion

Medication and Operational Duties

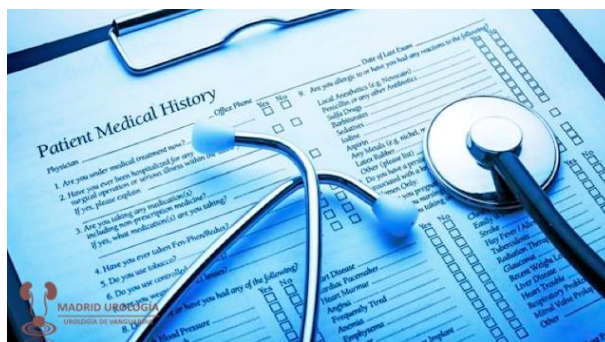
Medication includes not only that prescribed by physician, but also over the counter (OTC) medication, herbal remedies, mineral and other supplements. Contrary to common beliefs, herbal remedies and supplements are not without side effects but may significantly affect the ability of pilots or air traffic controllers to perform their operational duties. New medications or supplements should therefore always be taken outside and not immediately before flying or air traffic control duties in order to find out if there are any unexpected side effects.

In addition, minor illnesses such as joint pain, nasal obstruction, abdominal upsets, or shortness of breath etc., may distract pilots or air traffic controllers and adversely affect their performance whilst on duty. It is worthwhile to note that these symptoms may also be aggravated by the side effects of the medication prescribed or bought over the counter, especially when new drugs are being developed and made available in the market rapidly. All these factors may affect a pilot or air traffic controller's performance and may lead to incapacitation.

This article highlights some tips on how pilots and air traffic controllers and their treating doctors can help each other in preventing the use of medication that may degrade duty performance and impact flight safety.

For Pilots or Air Traffic Controllers

- You should always be careful when using any kind of medication, whether it is prescribed, purchased over the counter, or purchased via the internet. Pay particular attention to those purchased from the internet as their quality may not be assured.
- Tell any doctor whom you consult regarding your occupation and how optimal physical and mental fitness is paramount for the safe performance of your duties.
- Ask your treating doctor about how your illness may affect your duty and whether the medication would affect your professional performance, fitness to work, and if there is any incapacitation risk.



- If your treating doctor is uncertain about the effects of the medication on your fitness to work, you can ask him to contact your Approved Medical Examiner (AME), or the Personnel Licensing Office of Hong Kong Civil Aviation Department (HKCAD) through email (plo@cad.gov.hk)
- If you have any questions about medication or health conditions that may affect flight safety in between your licensing medical examination, **contact your AME**. Your AME should know the legal requirements and has the aeromedical knowledge to help you and your treating doctor to find the best solution.
- During your licensing medical examination, report to your AME of any illness and/or medication, including prescribed medication, self-medication, and herbal supplements.

For Doctors Treating Pilots or Air Traffic Controllers

- Enquiring on your patients' occupational history is important – you need to know that your patient is a pilot or air traffic controller.
- Ask your patient about the working conditions of his/her job:
 - what are the physical and mental capacities needed;
 - if the workload is heavy, has he/she experienced fatigue; and
 - information in circadian aspects (e.g. night duties, early starts, time-zone crossing).
- Consider the effects of the illness and the medication you prescribe on the performance of your patient, i.e. whether they will affect the Central Nervous System functions, cognitive/psychomotor performance, alertness, consciousness, cardiovascular and respiratory system functions and sensory functions etc.
- Your patient is likely to be fit for operational duty if:
 - he/she can execute all functions on board even in difficult operational circumstances, e.g. flying in bad weather etc.;
 - there is no significant risk of sudden/subtle incapacitation; and
 - the flying activity is not expected to worsen his/her health condition.
- Consider whether initial treatment on a new medication or change of dose on an established medication may necessitate grounding of your patient (e.g. at present HKCAD's requirement is whenever there is a change or adjustment of a pilot's or air traffic controller's anti-hypertensive medication, he/she will be grounded for at least 2 weeks or until no adverse effect is noticed.)
- Medication that may disqualify operational duties has at least one of the following effects:
 - causing impairment to Central Nervous System functions;
 - causing impairment to cognitive/psychomotor performance, alertness, consciousness;
 - causing impairment to cardiovascular and respiratory system functions; or
 - causing impairment to sensory functions (e.g. visual, auditory and vestibular functions etc.)
- If you have any doubts on the effects of illness and/or medication on your patient's fitness to operational duty, or if he/she has to be grounded, **consult his/her AME** or contact the Personnel Licensing Office of HKCAD.

Guidance on Common Medication, Herbal Remedies and Supplements

ANTIMICROBIALS include antibiotics, antiviral, antifungal and antiparasitic drugs. They may have short term or delayed side effects which can affect pilots' or air traffic controllers' performance. More importantly, their use usually indicates that a fairly severe infection is present, for which the effects of the infection most likely means that the person is not fit to fly or to control air traffic regardless of any effects of the medication taken.

PSYCHOACTIVE MEDICATION such as tranquilizers, antidepressants and sedatives by definition pass into the brain and can readily affect the ability to respond to any situation in a normal manner. The use of this group of medicines has been a contributory cause in fatal aircraft accidents. In addition, the underlying condition for which these medications have been prescribed usually means that a pilot's or air traffic controller's mental state is not compatible with their professional duties. After stopping the antidepressant, for the sake of clinical stability, a minimum of 3-month period of observation with no suggestion of recurrence of symptoms and satisfactory medical and, if appropriate, peer monitor reports would be required prior to the consideration of recertification.

STIMULANTS such as caffeine, amphetamines (often called 'pep' pills) are used to maintain wakefulness or to suppress appetite. They are often habit forming and all of them may cause dangerous overconfidence. The use of such stimulants while flying or controlling air traffic cannot be permitted. However, drinks such as coffee or colas in reasonable quantities are acceptable.

ANTIHISTAMINES AND SLEEPING TABLETS are typically sedative in their action. Antihistamines are widely used to treat colds, hay fever and allergies. They may be in the form of tablets, liquids, nose drops or nose sprays. Some antihistamines are marketed as non-sedating. Some examples include fexofenadine (Allegra, Telfast), terfenadine (Seldane) and loratidine (Clarityne). However, even non-sedating antihistamines may have a sedating effect in some individuals, particularly when the patient is exposed to the reduced oxygen level found in pressurised aircraft cabins.

SLEEPING TABLETS AND SEDATIVE MEDICATION would take 5 half-lives before majority of the drugs would be eliminated from the body and be considered safe for flying. Half-life is the time required for 50% of the drug being eliminated from the body. Since each formulation of drug would have a different half-life, licence holder is advised to consult an AME regarding the safe use of any sedative medication.

DRUGS FOR THE TREATMENT OF HIGH BLOOD PRESSURE have improved significantly in terms of benefits and relative lack of side effects. Following investigation and the initiation of treatment, most licence holders diagnosed with hypertension can continue in post. Most will respond favourably to certain general health measures and one or a combination of the following types of medication: sartans (angiotensin receptor antagonists); angiotensin converting enzymes (ACE) inhibitors; slow channel calcium blocking agents (CCBs); diuretics and beta adrenergic inhibitors. However, rauwolfia alkaloids, hydralazine, guanethidine, minoxidil and the alpha 1 blocking agents are not permitted. In all cases, the licence holder must use the medication for a minimum of 2 weeks without significant side effects on a stable maintenance dose and satisfactory blood pressure readings before being assessed fit to resume duty.

ANALGESICS fall into two broad groups: narcotic and non-narcotic. The most commonly used members of the narcotic group are opium derivatives, morphine derivatives, methadone group and

meperidine group. They are incompatible with flying and air traffic control duties. The non-narcotic group includes aspirin and paracetamol (acetaminophen). Whilst they may be acceptable for use by a licence holder, the condition for which they are being taken is often not compatible with professional duties.

ANTI-INFLAMMATORY DRUGS include steroids and the non-steroidal anti-inflammatory drugs (NSAIDs). Steroids have complex actions and are not suitable for licence holders without an aeromedical assessment. In recent years, increasing evidence of significant side effects in NSAID users means that they should be used with great caution by licence holders. Their use also indicates a significant medical condition.

LOCAL, REGIONAL, GENERAL ANAESTHETICS AND HEAVY SEDATION need to be completely cleared from the body before a licence holder resumes work, no matter whether they are used for dental work, surgery or an investigation. Following acupuncture and local anaesthesia, 12 to 24 hours should have elapsed before resuming work. For regional, general anaesthesia and heavy sedation, the interval should be a minimum of 48 hours.

MELATONIN is a hormone produced by the pineal gland. It is not a hypnotic and has not been shown to be useful as an aid to sleep. It may play a role in regulating an individual's circadian rhythm. There is evidence that taking melatonin following a vacation away from home may help the body readjust to home time. However, taken at a wrong time in an individual's circadian rhythm may delay recovery from jet lag. All hormones have an adverse effect if taken inappropriately. Long term adverse effects from melatonin may exist. In many countries, melatonin is available OTC as a food or herbal supplement. It is, therefore, not subject to the same regulations that govern prescribed medications. The quality and quantity of melatonin bought OTC cannot be guaranteed. ICAO Manual of Civil Aviation Medicine Part III Chapter 17 has useful information on Fatigue, Sleep and Aviation. Page III-17-6 discusses the use of melatonin in aviation. Any licence holder who is thinking of using melatonin is advised to discuss with an AME.

SILDENAFIL CITRATE (VIAGRA), TADALAFIL (CIALIS), VARDENAFIL (LEVITRA AND STAXYN) and other medications are used to treat erectile dysfunction. All have side effects that are important in the flying environment. These include disturbance of vision, especially colour vision, dizziness, flushing, headache and diarrhoea. Duration of side effects can be as long as 36 hours. Viagra has the shortest half-life but should not be used within 10 hours prior to reporting for flying duties. Cialis has a much longer half-life and the interval should be not less than 72 hours. Vardenafil is intermediate in terms of the duration of side effects.

COMBINATION MEDICINES are commonly marketed and it is essential that the individual licence holder knows what medication he is taking and discusses with a physician who is knowledgeable about the effects on the individual constituents, interactions with other substances and the working environment.

The information is provided for reference only and does not constitute any medical advice. In any case, pilots and air traffic controllers are strongly recommended to consult an AME before taking any new medication or supplements of if they have any questions about medical certification.