Air Travel

Traveler Summary

Key Points

- Very low cabin humidity can be dehydrating; the effects of jet lag and the risk of traveler's thrombosis are both increased. Maintaining hydration and minimizing alcohol intake help with both.
- **Jet lag** : Crossing 3 or more time zones disrupts the body's internal clock; eastbound flights are more poorly tolerated. Prevention includes remaining well hydrated throughout the flight, seeking bright light upon arrival, and scheduling sleep and meals at destination time before and during the flight. Medications to help with sleep at the destination sleeping time for the first few days may help. Avoid sedatives during the flight.
- **Traveler's thrombosis** : Factors that can lead to the formation of blood clots in the legs (with possible spread to the lungs) include the length of the flight, inactivity during the flight, and personal risk factors (including a personal or family history). Maintaining hydration, flexing ankles, walking frequently, and sitting in an aisle seat are important. Use layover time to walk to maintain circulation. At-risk passengers should wear graded compression stockings that fit well and exert 20-30 mmHg at the ankle.
- **Infectious Diseases** : Transmission of respiratory and gastrointestinal pathogens is by direct contact, not from the ventilation system. Prevention includes observing respiratory hygiene (cough and sneeze etiquette) and hand hygiene (frequent, thorough handwashing), especially after using the bathroom and before eating food.

Introduction

Airline travel is normally fast, convenient, and safe. However, hassles at the airport and flight delays or cancellations can cause stress; the environment in the cabin can cause discomfort; and health problems can cause inconvenience or be aggravated; long flights carry additional hazards.

Planning Ahead

There are a number of issues to consider before flying. Many of these should be discussed with the health care provider before traveling. Issues to consider include general fitness to fly, medical conditions (acute or chronic), risk of venous thrombosis, and the airline's ability to accommodate a traveler with physical disabilities and or one who needs oxygen.

Travelers going abroad should carry regular medications in carry-on luggage and wear loose, comfortable clothing and shoes.

Travelers should register with their country's government if that service is available as it may prove beneficial in case of an emergency, disaster or for evacuation coordination.

Fitness to Fly

Health Issues

Travelers should consult a health care provider to evaluate their fitness to fly, especially those who are pregnant, ill, have recently had surgery, have sickle cell disease or other chronic medical or psychiatric conditions, or have a history of deep vein thrombosis.

Travelers with serious health problems or disabilities should contact the airlines in advance of travel to explain the medical issue with a reservations agent who can forward the inquiry appropriately.

Persons who may require oxygen should be aware that airlines are not required to provide medical oxygen during flights. Some may require passengers to use the airline's on-board oxygen, while others may allow passengers to use their own oxygen while on the runway but require that they switch to the plane's oxygen once on board. If oxygen is needed on the ground, travelers must arrange their own oxygen supplies for the flight itself.

- See ***Pulmonary Disease and Air Travel***.

Persons with chronic medical conditions (e.g., heart or respiratory disease and other chronic disorders) should be sure that the condition is stabilized before traveling.

- See ***Cardiovascular Disease and Air Travel*** and ***Pulmonary Disease and Air Travel***.

Healthy persons who are prone to ear pain on descent should remember to swallow, chew, or yawn in order to facilitate free flow of air to the middle ear and sinuses. Infants should be bottle or breastfed or offered a pacifier; a warm towel against the ear is also helpful.

- Persons who have had repeated ear or sinus pain after flying (a condition called barotrauma) should ask their health care provider about preventive medications such as oral or nasal decongestants or pseudoephedrine tablets.
- Travelers who have recently had middle ear surgery, severe congestion, infection, or severe sinusitis should consider not flying.

Travelers who had had recent surgery (especially abdominal, neurologic, pulmonary, or eye procedures) should consult with their providers before flying.

Travelers sensitive to abdominal bloating should avoid carbonated beverages and foods that can increase gas production.

In most cases, travelers with simple colds or coughs can fly but should observe respiratory hygiene (cough and sneeze etiquette) and hand hygiene (frequent, thorough handwashing). Travelers with an active communicable disease (other than a mild cold or cough) should delay flying until no longer infectious. Chickenpox, measles, influenza, tuberculosis, and gastroenteritis are of particular concern.

Persons with psychiatric disorders whose behavior is unpredictable, aggressive, disorganized, disruptive, or unsafe should not travel by air. Persons with psychotic disorders who are stabilized on medication and accompanied by a knowledgeable companion may be able to fly.

Disabilities

Most countries have legislation in place to guarantee access to air travel for passengers with disabilities. However, aircraft with fewer than 30 seats are generally exempt from these requirements. Aircraft with more than 60 seats must have an on-board wheelchair, and flight attendants must help move the wheelchair from a seat to the lavatory area. However, flight attendants are not required to transfer passengers from wheelchair to wheelchair, wheelchair to aircraft seat, or wheelchair to toilet seat. In addition, airline personnel are not obliged to assist with feeding, using the bathroom, or dispensing medication to travelers.

Check with the airlines regarding access and availability of oxygen, wheelchairs, and so forth. before flying. Travelers with disabilities who require assistance should not travel alone.

Pregnancy

- Pregnant women who plan to fly during the last 3 months of pregnancy should carry a letter from the obstetrician indicating the baby's due date, in case airline officials request confirmation of due date.
- In general, it is safe for pregnant women to fly up through 36 weeks' gestation, unless there are other issues that would prohibit flying.
- Air travel during the final month of pregnancy is usually prohibited by airlines; contact the airlines about any restrictions.

Pregnant women should probably not fly if there is a risk of preterm delivery, pregnancy-induced hypertension, poorly controlled diabetes, sickle cell trait or disease, and other serious medical conditions.

Long flights are associated with a certain degree of immobility and venous stasis (blood pooling in the legs), which present a risk of blood clots (called deep vein thrombosis or DVTs).

- Consider wearing compression stockings.
- When possible, sit in an aisle seats so it is easier to get up and walk.
- Wear airline seat belts low around the pelvis.
- For more information, see ***Pregnant Travelers***.

Infants and Children

While healthy, full-term newborns are usually able to fly without any problem, some airlines have a minimum age limit, generally age of 1-2 weeks. Some airlines may require a medical clearance letter for children younger than 2 weeks. Contact the airlines for requirements.

- On flights within the US, children 2 years and older must have a separate ticket and sit in their own seat.
    - Children who weigh less than 18 kg (40 lb) should use an approved child-restraint seat (CRS). To assure that a seat is available to use the CSR, a ticket would be needed for these children. (See ***Young Children and Travel***.)

- On international flights, requirements vary.
  - Children 2 years and older must purchase an airline ticket for a separate seat. Requirements vary on the need to purchase a ticket for an infant younger than 2 years. Call the airlines for details.
  - A CRS must be used for any child in their own seat who is unable to sit unsupported; some airlines require a CRS for all children under a certain weight occupying their own seats.
  - Some airlines provide a sleeping bassinet for infants up to 14 kg (31 lb) for use in-flight.
- A child held in one's lap must be held without any additional tie-ins or restraints during taxi, take-off, and landing.

Infants and toddlers often have bouts of ear infection, which can increase the risk of ear pain, especially during descent.

- Ear pain may be lessened by yawning, chewing, swallowing, or sucking on a pacifier. A warm towel over the ear may also help.
- Pseudoephedrine, antihistamines, and other decongestants are banned for use in children younger than 4 years in the US and younger than 6 years in Canada. There is little evidence of their effectiveness in children younger than 12 years, and many expert pediatricians recommend against their use in children younger than 12 years due to the potential for side effects.

In-flight sedation for young children is not recommended.

- Diphenhydramine and dimenhydrinate, which had been used for this in the past, are not recommended in children younger than 12 years.
- For motion sickness, scopolamine is an option for children 12 years and older.

Flying After Diving

Flying too soon after diving carries the risk of decompression sickness. Persons who fly after diving should follow the guidelines below.

- Wait 12 hours after a non-decompression dive before flying.
- Wait 24 hours or more after a dive requiring a decompression stop.
- Wait 18-24 hours or more for if making multiple dives each day for several days.

In-Flight Issues

Cabin Environment

Commercial aircraft have lower oxygen levels, which can cause problems for travelers with severe cardiac or respiratory disease (see ***Cardiovascular Disease and Air Travel***). These persons should consult with their health care provider to evaluate fitness to travel and the need for supplemental oxygen or other special assistance while flying. Medical oxygen can be arranged with most airlines. Preapproved portable oxygen generators may be used on-board. Check with the carrier several days in advance of the flight.

Rarely, airborne diseases have been transmitted to in-flight travelers within a 2-seat range (in back, front, and beside) of an infectious traveler. Since transmission of respiratory and gastrointestinal pathogens is by direct contact, travelers should observe respiratory hygiene (cough and sneeze etiquette) and hand hygiene (frequent, thorough handwashing or using an alcohol-based hand sanitizer containing ≥ 60% alcohol), especially after using the bathroom, changing diapers, and before preparing or eating food.

Humidity in the cabin is usually low. Travelers should stay hydrated by drinking water and limiting consumption of alcohol, tea, and coffee; wearing glasses instead of contact lenses; and using a skin moisturizer and eye drops.

Ionizing radiation levels in flight vary with altitude and latitude but may be 6 times higher at cruise altitudes of 12,000 m (40,000 ft), as compared to sea level. Frequent flyers such as business travelers or cabin staff would need to fly at least 2,000 hours a year to exceed the internationally recommended ionizing radiation limit. However, pregnant women should be advised to limit flying on subsonic aircraft to less than 200 hours during the pregnancy to reduce exposure.

Disinsection

Some countries, but not the US, require disinsection of all or certain inbound flights. This is done in 1 of 3 ways:

- Spraying the interior of the aircraft cabin with insecticide while passengers are still on the plane. There is no evidence that this causes skin problems or exacerbates asthma.

- Spraying the aircraft with insecticide with no passengers on board.
- Treating the interior surfaces of the aircraft with an insecticide (permethrin) while passengers are not on board. The levels of permethrin in cabin air after application are so low as to be of no threat to passengers. Most airlines use this method.

Travelers can check on disinsection requirements with the travel agent or airline.

Sleep Deprivation and Jet Lag

On flights that cross 3 or more time zones, sleep deprivation can be a significant problem, especially for business travelers. Lack of sleep can affect attention, memory, reasoning, and mood, leaving the traveler open to errors of judgement and a variety of other risks.

Jet lag contributes to sleep deprivation because the mismatch in time clocks makes for disturbed or fragmented sleep. Jet lag is worse after eastward flights.

Preventive strategies include adjustment of sleep patterns, timed exposure to bright light, use of melatonin, and careful use of a hypnotic or stimulant. In addition, travelers should resist the temptation to sleep during daytime hours for the first few days at destination; this decreases one's ability to sleep at night and prolongs the adjustment cycle.

Sedatives are no longer recommended on airline flights due to the risk of blood clots in the legs during prolonged immobility.

Melatonin and Timed Light Exposure

The body normally has a cycle in which melatonin (a natural hormone that aligns sleep cycles) reaches peak blood levels at around 2:00 a.m. When crossing time zones, this peak needs to be shifted to avoid symptoms of jet lag: sleep disturbances, daytime fatigue, weakness, headache, sleepiness, and irritability. Most symptoms disappear by the fifth day after traveling across a 6-hour time zone. It is difficult to compensate for jet lag for trips shorter than 3 days, and some would advise against attempting to do so.

Complicated melatonin regimens have been described but most are impractical. In principle, for travelers flying eastward, 0.5-5 mg melatonin (the optimal dose has not been determined) should be taken at destination bedtime, followed by exposure to bright light early the following morning, maintaining the regimen until fully adapted. Travelers flying westward should be exposed to bright light in the early morning. A commercial light box may be used if there is no access to natural light. Even ordinary room light may helpful.

Cautions regarding melatonin:

- Melatonin can produce sleepiness and reduced alertness. Persons taking melatonin should not drive, operate heavy machinery, or perform tasks requiring alertness for 4 to 5 hours after taking melatonin.
- Persons who suffer from psychiatric problems or migraine headaches or who are pregnant or intend to become pregnant should use melatonin with caution, if at all.
- Melatonin is considered a food supplement in the US, and is unregulated by the FDA as to actual content of active ingredient. Travelers should consult their physicians regarding its use.

Zolpidem (Ambien) and Other Hypnotics

Zolpidem is as effective as melatonin in reducing jet lag symptoms. Zolpidem can be used to induce sleep at the destination sleeping time, for up to 2-3 nights. It can also be used for 2-3 nights after returning home, to induce sleep at the home sleeping time.

Zolpidem comes in a standard formulation and an extended release formulation.

- Some persons may experience next-morning impairment in activities that require full alertness (e.g., driving), regardless of which formulation is used.
- Extended release zolpidem can result in day-long impairment in activities that require full alertness.
- Use the lowest effective dose.
- Women have a slower clearance rate than men so lower doses are recommended. See below.

Recommended dosage:

- Women: 5 mg standard formulation or 6.25 mg extended release formulation.
- Men: 5 or 10 mg standard formulation or 6.25 or 12.5 mg extended release formulation.

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Other Ways to Reduce Jet Lag

- Choose daytime flights to minimize loss of sleep and fatigue.
- Avoid large fatty meals, caffeine, and alcohol during the flight.
- Drink lots of water.
- Get regular exposure to daytime outdoor light or high intensity artificial light.
- Caffeine may combat daytime drowsiness.

Travelers' Thrombosis

Deep vein thrombosis (blood clots in the leg veins) can occur during or after flying. Factors that can lead to the formation of blood clots include the length of the flight, inactivity during the flight, and personal risk factors. Prevention is vitally important.

- During long flights, blood flow in the legs is reduced and can contribute to the formation of clots.
- Inactivity during flight may be as important as the length of the flight.
  - Travelers should sit in an aisle seat, if possible, making it easier to get up and walk around.
  - Avoid sleeping, if possible, as sleeping increases the risk of blood clots by 10% for every hour slept.
  - Flying business class reduces risk only slightly. The potential benefits of flying business class (more cabin space, easier access to the aisle, and more comfortable seating) are lost if the passenger does not make use of them to walk and exercise.
- Dehydration and dry cabin atmosphere may contribute to risk.

Personal risk factors for blood clots include:

- Older than 50 years
- Obesity
- Very tall or very short in height
- Late pregnancy and the first 6 weeks after giving birth
- Chronic venous insufficiency or large varicose veins
- Coagulation disorders
- Smoking tobacco
- Late pregnancy and the first 6 weeks after delivery
- Chronic inflammatory disease
- Medication that contains hormones (e.g., oral contraceptive, female hormone replacement, anti-estrogen therapy)
- Personal or family history of blood clots
- Surgery within the past 4-6 weeks
- Significant trauma or prolonged immobilization (e.g., due to a cast on the leg) within the last 6 weeks
- Cancer within the last 2 years or currently receiving chemotherapy
- Failure to take preventive measures

Prevention

Travelers flying for more than 4-6 hours:

- Wear comfortable, loose-fitting clothing that is not tight at the knees or waist.
- Walk around the cabin hourly, if possible. This is easiest from an aisle seat.
- Stand and perform stretching exercises.
- Exercise the calf and thigh muscles by flexing and extending the ankles and knees while seated.
- Avoid sitting with legs crossed.
- Use a footrest when possible to reduce pressure on the backs of the thighs or calves.
- At transit stops, get up and walk around.
- Drink enough water to maintain a flow of pale lemon-colored urine.
- Avoid excess alcohol as it may cause sleepiness.
- Avoid sleeping pills and sedatives.
- If taking blood thinners (e.g., Coumadin, warfarin), have clotting times checked before flight.

Travelers flying for 8 hours or longer:

- The traveler should ask his or her physician about the value of low-dose heparin if there is a personal history of blood clots.

- At-risk passengers should wear graded compression stockings that fit well and exert 20-30 mmHg at the ankle.

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