

TIPS FOR HEALTHY COMFORTABLE AIR TRAVEL

PLAN AHEAD:

- BE SURE YOUR IMMUNIZATIONS ARE CURRENT.
- DELAY YOUR TRIP IF YOU ARE NOT WELL.
- RESERVE A SEAT BY THE WINDOW IF YOU ARE PRONE TO AIR SICKNESS.
- SEEK THE ADVICE OF YOUR PHYSICIAN IF THERE IS ANY QUESTION.
- ALLOW AMPLE TIME TO CHECK IN AND REACH YOUR DEPARTURE GATE.
- CARRY YOUR MEDICATION WITH YOU.
- WEAR LOOSE, COMFORTABLE CLOTHING AND COMFORTABLE SHOES THAT HAVE BEEN WORN PREVIOUSLY.

INFLIGHT

- EAT LIGHTLY.
- DRINK WATER AND FRUIT JUICES.
- DO NOT PLACE ANYTHING UNDER THE SEAT IN FRONT OF YOU SO YOU CAN STRETCH AND EXERCISE YOUR LEGS.
- STAND AND WALK ABOUT THE CABIN PERIODICALLY.
- RELAX AND ENJOY YOUR FLIGHT.

Useful Tips for Airline Travel can be found on the Aerospace Medical Association's Web Site (www.asma.org) under Publications.

The Aerospace Medical Association also has a 52-page publication entitled "Medical Guidelines for Airline Travel." It provides information for physicians to enable them to properly advise patients with preexisting illness who plan to travel by air. Available free in PDF format from the AsMA website: www.asma.org under Publications



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USEFUL TIPS FOR AIRLINE TRAVEL

Air travel in commercial aircraft is fast, convenient, and safe with the vast majority of passengers reaching near and distant destinations safely and without deleterious health effects. However, the aircraft environment and travel related factors can cause certain stresses on the traveler, and several tips can make travel more enjoyable. This brochure has been prepared by the Aerospace Medical Association to provide passengers with general health information and useful air travel tips.

EFFECTS OF ALTITUDE

Although aircraft cabins are pressurized, that pressure (called barometric pressure) is less than that on the ground. For most flights the cabin pressure is the same as that at 5,000 - 8,000 feet above sea level. In other words, when you are flying, the atmosphere within the aircraft is like that on the 5,000 - 8,000 feet peak of a small mountain. This has two effects: there is less oxygen available because the pressure of oxygen becomes lower; and, gas within our body cavities expands. Both of these phenomena are usually well tolerated by healthy passengers.

A) Oxygen

There is less oxygen absorbed into the blood and circulated throughout the body during flight as compared to ground level due to a decrease in oxygen with an increased cabin altitude. As long as you are in reasonably good health, your body has physiological mechanisms that compensate for this decreased quantity of oxygen. On the other hand, passengers with significant heart, lung, and blood diseases may not well tolerate lower amounts of oxygen. Therefore, they

should consult their physician before air travel to evaluate their capability to travel and to determine if there is a need for medical oxygen or other special assistance. Medical oxygen can be arranged with most airlines and it is important to check with your carrier several days in advance of the flight. Furthermore, the combination of low oxygen, alcohol, inactivity and sleep can generate unpleasant side effects like dizziness and/or fainting if one stands up too fast after awakening. Arm and leg exercises before standing up will usually prevent this.

B) Gas Expansion

The body contains air in the middle ear (inside of the ear drum) and sinuses. As the aircraft ascends, the air in these cavities will expand to the outside via tubes connecting them to the nose. On descent the reverse occurs with air flowing from outside to these cavities via the same tubes. This is well tolerated as long as the air can flow into and out of these cavities freely. To facilitate the free flow of air, particularly on descent, it is helpful to periodically swallow, chew, or yawn. (This is why it is important that passengers stay awake during descent.) Give something to drink to young children or a pacifier to infants.

Individuals with ear, nose and sinus infections should avoid flying because the congestion prevents the air from flowing freely in and out of these cavities which could result in pain, bleeding, and possibly a ruptured ear drum.

Also, avoid gas forming foods or liquids before flight.

THE CABIN ENVIRONMENT

A) Air Quality

In all modern pressurized aircraft, half

the cabin air is fresh air drawn in via the engines with the other half recirculated from the cabin. The recirculated air is ducted through an air filter (see HEPA below) before being reintroduced into the cabin. There is a total air change (filtered recirculated plus outside air) every 2 - 3 minutes or 20 to 30 exchanges per hour. This is far more than for any home or office building and easily maintains cabin contaminants to low levels. Several studies of the past 10 - 15 years have confirmed that the levels of volatile organic compounds (solvents), airborne particulates, carbon monoxide, carbon dioxide, ozone and microbials were well within acceptable health levels of our regulatory agencies.

The newer aircraft with recirculation systems use High Efficiency Particulate Air Filters (HEPA). They are the same as in hospital operating rooms and trap particulates and microbials (bacteria, fungi, and some viruses). Although there have been cases of infectious disease transmission in aircraft cabins, there is evidence that transmission was due to person-to-person contact by breathing or coughing on one's neighbor rather than through the aircraft ventilation system. Person-to-person transmission can occur in any confined space whether in an airplane, office, or room. For this reason, individuals with contagious diseases, particularly serious ones such as TB, should not travel by air until the illness is in remission.

B) Humidity

Aircraft cabin relative humidity is usually less than 20%, which is fairly dry. Although these low levels may be a source of mild discomfort (dry skin and eyes), there is little risk to your health.

Minimize discomfort from dryness by:

- Drinking reasonable amounts of water and juices.

- Limiting consumption of alcohol, tea, coffee, and caffeinated drinks because they cause you to lose fluids.
- Wearing spectacles instead of contact lenses.
- Applying a skin moisturizer.

C) Motion

For those susceptible to motion sickness

- Request a seat over the wings.
- Schedule flights on larger airplanes.
- Request a window seat.
- Avoid alcohol for the 24 hours prior to flight and inflight.
- Keep seat belts fastened while seated.
- Consult your physician about motion sickness medication if necessary.

D) Space

Because of crowding in some aircraft, passengers are frequently uncomfortable and unable to stretch or easily leave their seats. In susceptible individuals, prolonged periods of immobility, can increase the risk for blood clots to form in the legs. This can occur in a train, car, bus, or aircraft. Consequently, it is called travelers thrombosis. There is no epidemiological evidence of a particular link with air travel itself.

Traveler's thrombosis can cause pain and/or swelling of the legs during travel or even several days or weeks afterwards.

Clots in the legs are not serious in themselves, but occasionally they break off and travel to the lungs causing what is called pulmonary embolism. This is not a common occurrence but when it does happen, it can be life threatening.

Nevertheless, a few simple tips might decrease the risk

- Wear loose clothing and avoid tight, restrictive garments.
- Place nothing under the seat in front of

you so you can stretch and periodically exercise your feet and ankles.

- Drink mainly juices and water while minimizing alcohol and caffeinated beverages.
- Walk about the cabin periodically (every 60 - 90 minutes).
- Consult your physician if you have underlying illness such as coronary artery disease, cancer, or blood clotting disorder.

MISCELLANEOUS

Passengers requiring prescription medications should always carry them on board in their hand luggage. This is especially important if you are taking medication for heart disease, diabetes, or seizures.

Jet lag is often associated with air travel especially when crossing multiple time zones. The symptoms of jet lag are multiple and vary with each individual, but result mainly from the internal body clock being out of phase with the daily schedule at the travel destination. Sleep is also often disrupted, leading to additional fatigue. Adjusting to jet lag is generally easier when travel is to the west, but most travelers adjust to the new time after a few days. Several tips may help diminish the effects.

- Rest well before the flight.
- Try to move 1-2 hours toward the destination time before flight, if your schedule permits.
- Eat lightly before and during the flight.
- Once departed, reset watches and other activities to the destination time.
- Drink water and fruit juices inflight and minimize alcoholic beverages.
- Consider using caffeinated beverages strategically during the day to mask fatigue but avoid use within 4-6 hours of bedtime when the effect may make sleep onset more difficult.

- Wear loose, comfortable clothing.
- Schedule outdoor activities on the first few days at the new destination.
- After arrival, adjust to destination time as soon as possible.
- Limit naps to a single nap of 30-40 minutes or less. Go to bed and awaken at the appropriate time for the new time zone.
- Discuss with your physician if sleep medication could be beneficial.

For travelers who SCUBA dive, it is advisable to wait 24 hours after the last dive before taking to the skies so as to minimize the risk of developing decompression illness, such as the bends.

CONCLUSIONS

Air travel, whether for business or pleasure, whether short haul or long haul, is safe and should be enjoyable. Understanding the aircraft cabin environment and planning ahead can make your journey more comfortable for the healthy traveler as well as the traveler with medical conditions or special needs. If in doubt, check with your physician or your airline.

The Aerospace Medical Association is pleased to provide these air travel tips and hopes that they will help you have a more pleasant trip.

About the AEROSPACE MEDICAL ASSOCIATION: *Founded in 1929, The Aerospace Medical Association (AsMA) is the world's leading organization in aviation, space, and environmental medicine. A non-profit professional organization of physicians, physiologists, human factors specialists, engineers, research scientists and others, AsMA is dedicated to enhancing health, promoting safety, and improving the performance of all who travel or work in the air, beneath the sea, and in outer space. If you are interested in learning more about us, please check out our web site at www.asma.org or contact us at the address on the cover of this brochure.*