

ALLEVIATING JET LAG

Jet lag – also called jet lag disorder – is a temporary sleep disorder that can affect anyone who travels across multiple time zones. Jet lag is caused by a disruption in your body's 24-hour internal clock or **circadian rhythm** which informs your body when it's time to be awake and when it's time to be asleep. The more time zones crossed in one journey, the more likely you will be to experience jet lag.

Jet lag can cause daytime fatigue, a generally unwell feeling, difficulty staying alert, and gastrointestinal problems. Although jet lag is temporary, it can significantly affect your vacation or business travel comfort. Fortunately, there are steps you can take to help prevent or minimize jet lag.

Symptoms

Symptoms of jet lag can vary. You may experience only one symptom or multiple symptoms. Jet lag symptoms may include:

- Disturbed sleep, such as insomnia, early waking, or excessive sleepiness
- Daytime fatigue
- Difficulty concentrating or functioning at your usual level
- Stomach problems, constipation, or diarrhea
- A general feeling of being unwell
- Muscle soreness
- Menstrual symptoms in women

Symptoms worsen the farther you travel

Jet lag symptoms usually occur within a day or two of travel if you've traveled across at least two time zones. Symptoms are likely to be worse or last longer the more time zones you cross, and especially if you travel in an easterly direction. It's estimated to take about one day to recover for each time zone crossed.

When to see a doctor

Jet lag is temporary. But if you are a frequent traveler and continually struggle with jet lag, you may benefit from seeing a sleep specialist.

Causes of Jet Lag

Disruption to your circadian rhythm

Jet lag can occur anytime you cross two or more time zones. Jet lag occurs because crossing multiple time zones puts your internal clock -- or circadian rhythm -- which regulates your sleep-wake cycle, out of sync with the time in your new locale. For instance, you lose six hours on a typical New York to Paris flight. That means that if you leave New York at 4:00 p.m. on Tuesday, you arrive in Paris at 7:00 a.m. Wednesday. However, according to your internal clock, it's 1:00 in the morning, and you're ready for bed, just as Parisians are waking up! And because it takes a few days for your body to adjust, your sleep-wake cycle, along with most other body functions, such as hunger and bowel habits, remains out of step with the rest of Paris.

The Influence of Sunlight

A key influence on your internal clock is sunlight. That's because the pineal gland, a part of the brain that influences circadian rhythms, responds to darkness and light. Certain cells in your retina — the tissue at the back of your eye — transmit light signals to your hypothalamus, a part of your brain. The signals are then sent to your pineal gland. At night, in the absence of light signals, the pineal gland releases the sleep-promoting hormone melatonin. During the day, with light, melatonin production is very low. So you may be able to ease your adjustment to your new time zone by exposing yourself to daylight in that new time zone.

Airline cabin pressure and atmosphere

Research shows that the changes in cabin pressure associated with air travel may contribute to some symptoms of jet lag, regardless of travel across time zones. A July 2007 study published in the New England Journal of Medicine showed that simulated air travel at cabin pressures equivalent to 7,000 to 8,000 feet of elevation produced symptoms of altitude-related malaise (a feeling of unwellness), muscular discomfort and fatigue. In addition, most airline cabins circulate very dry air, which can be dehydrating. Mild dehydration can contribute to feelings of malaise, headaches, and eye and nasal discomfort.

Risk factors of Jet Lag

Factors that increase the likelihood you'll experience jet lag include:

- **Number of time zones crossed.** The more time zones you cross, the more likely you are to be jet-lagged.
- **Flying east.** You may find it harder to fly east, when you "lose" time, than to fly west, when you gain it back.
- **Being a frequent flyer.** Pilots, flight attendants and business travelers are most likely to experience jet lag.
- **Being an older adult.** Older adults may need more time to recover from jet lag than younger adults.
- **Complications.** Extreme circadian rhythm variation has been reported in some instances of heart attacks and strokes, but this is rare.

Treatment Options for Jet Lag

Jet lag usually doesn't require treatment. However, if you're a frequent traveler continually bothered by jet lag, your doctor may prescribe medications or light therapy.

Medications

- Non-benzodiazepines, such as zolpidem (Ambien), eszopiclone (Lunesta) and zaleplon (Sonata)
- Benzodiazepines, such as triazolam (Halcion)

These medications may help you sleep during your flight and for several nights afterwards. Side effects are uncommon, but may include nausea, vomiting, amnesia, sleepwalking, confusion and morning sleepiness. Although these medications appear to help with sleep duration and quality, they may not diminish daytime symptoms of jet lag.

Light therapy

Your body's internal clock -- or circadian rhythm -- is influenced by exposure to sunlight, among other factors. When you travel across time zones, your body must adjust to a new daylight schedule and reset, allowing you to fall asleep and be awake at the appropriate times. Light therapy can help ease that transition. It involves regularly exposing your eyes to an artificial bright light or lamp that simulates sunlight for a specific duration of time at a point in the day when you are meant to be awake. This may be useful, for example, if you are a business traveler and are frequently indoors — away from natural sunlight — during the day in a new time zone. Light therapy comes in a variety of forms including a light box that sits on a table, a desk lamp that may blend in better in an office setting, a light visor that you wear on your head, and a dawn simulator that gradually makes a room brighter — simulating sunrise — which may help you awaken in the morning.

Sunlight

Use sunlight to reset your internal clock. It's the most powerful natural tool for regulating the sleep-wake cycle. Plan ahead to determine the best times for light exposure on the basis of your origin (or home) and destination points and overall sleep habits. An online jet lag calculator may make this task easier.

Avoiding light at certain times is every bit as important as taking it in at others. For example at night, draw the blinds or drapes in your hotel room, or use a sleep mask; during the day, dark glasses can help block out light. And if possible, the hypothetical New York to Paris traveler should avoid light from 9:00 a.m. to 11:20 a.m. on day one, and from 6:00 a.m. to 8:20 a.m. on day two, for best results. (Of course in the real world, this can be a challenge!)

Caffeine

Using caffeine, such as in the amounts you encounter in beverages like coffee, espresso and soft drinks, may help offset daytime sleepiness. However, it's best to time caffeine use so that it doesn't interfere with planned bedtime, because it may make it even more difficult to fall asleep or sleep well. So, for example, you may not want to consume caffeine within six hours of when you plan to go to bed.

Melatonin

As a jet lag remedy and sleep aid, melatonin has been widely studied, and it is now a commonly accepted part of effective jet lag treatment. The latest research seems to show that melatonin does indeed aid sleep during times when you wouldn't normally be resting, making it of particular benefit for people with jet lag. The hormone is treated as a darkness signal by your body and generally has the opposite effect of bright light. The time at which you take melatonin is important. If you are trying to reset your body clock to an earlier time, you should take melatonin in the evening; if you are trying to reset your body clock to a later time, melatonin should be taken in the morning.

Small doses — as little as 0.5 milligrams — seem to be just as effective as doses of 5 milligrams or higher, although higher doses have been shown in some studies to be more sleep-promoting. If you do use melatonin, take it 20 minutes before you plan to sleep or ask your doctor about the proper timing. Avoid alcohol when taking melatonin. Side effects are uncommon but may include dizziness, headache and loss of appetite, and possibly nausea and disorientation.

Investigate Other Remedies

Most frequent flyers have a favourite jet lag cure, from aromatherapy or homeopathy to special diets. Many of these diets alternate days of feasting and fasting and high-protein and low-protein meals. Though no anti-jet-lag diets have definitively been shown to work, some people swear by them. If the diets themselves seem too complicated, you can approximate their effects by simply eating more high-protein foods to stay alert and more carbohydrates when you want to sleep. Most alternative jet lag therapies aren't harmful and may be worth a try if nothing else helps.

Quick Tips for Combating Jet Lag

1. **Drink plenty of water.** Not just the little cups of water the airline attendants give you! Buy some water (preferably 2 bottles) once you pass the security checkpoint. Flying can dehydrate you, so drink up.
2. **Speaking of drinking up, skip drinking any alcohol on the plane.** You may think it will help you get rest, but it will not be a refreshing kind of rest.
3. **Get up and stretch frequently.** You can stand in the area in the back of the plane where the bathroom and attendants are. Stretching and walking around is great when you are feeling "plane (cabin) fever". Also, moving around (and wearing compression socks) can reduce your chances of getting deep vein thrombosis (DVT), which is rare but dangerous.
4. **Get as much rest as you can.** There are many things on the airplane that may distract you from getting some sleep (movies, music, the view, etc). However, it is important to get as much sleep as you can during your flight to reduce fatigue and rest your body.
5. **Speaking of rest -- ask your doctor for a medication to help you sleep.** And, make sure you try this medication out at home BEFORE your flight. If you have a side effect, it's better to have one at home rather than at 30,000 feet! Make sure you bring the pill bottle with the dosage and doctor's name on it.
6. **Stick to your new time schedule as much as possible.** If you get enough rest on the plane, you will be much more likely to stay awake the next day after you land. Think of the plane as a "neutral time zone". This is where you want to get your rest. When you get to your destination, walk around and get out in the daylight as much as possible. Sticking to a new schedule also includes altering meal times to adjust to the new time zone.
7. **Get a head start.** Consider the benefits of flying one day earlier to allow your body's internal clock a chance to adjust in time for any important meetings you may have. Also, consider scheduling layovers instead of straight-through flights when crossing four or more time zones.
8. **Try to keep anxiety in-check, as it can prevent you from getting rest.** Accordingly, try to remember that turbulence is usually no worse than what you experience on a mild rollercoaster, so just roll with it. It's happening anyway, so try not to fight it. And, if you have a fear of flying, try thinking of the plane as a big

bus, with wings. (If you need more assistance with overcoming a fear of flying, please contact the Psychology Department at Cleveland Clinic Canada.)

9. **Bring an iPod with a relaxation or self-hypnosis file.** Also, create a playlist of soothing or comforting songs for the plane journey, as well as a playlist of more peppy songs for when you land and have to stay awake.
10. **Bring earplugs.** The highest grade ones available. And use them. Also, bring a sleep mask. The airline may or may not provide one for you, so it's best to bring your own.
11. **Set your watch to the new time zone as soon as you get on the plane.** And stick to that schedule. However, if you take medication, stick with the time you would regularly take it. Check with your doctor about when to take your "morning dose" when you get to your destination.
12. **Remember that you can get jet lag even if you are only changing a few time zones.** It's the fact that you are on a plane for a long period of time, not so much the change in time zones, that leads to jet lag.
13. **Before you leave, get a clear 3-prong folder where you can put your itinerary, a copy of your passport, copies of the front and back of your credit cards, health insurance card, and driver's license.** Also include a list of alternative flights to your destination (you can find this on your airline's website). Having all this information in one place can help reduce your level of stress and exhaustion, and thus reduce your chances of jet lag.
14. **Do carry-on as much as possible.** Being able to get through passport control and customs and immediately out of the door makes for a more hassle-free journey.
15. **Regulate light exposure.** Since light coming through our eyes is responsible for regulating our body's internal clock, one way to avoid jet lag is to use a blue LED light. Additionally, when traveling east, waking up progressively earlier three days before you leave and sitting near the light for 30-45 minutes can help alter your internal clock.
16. **Have a protein-filled breakfast.** Eating a breakfast rich in protein (such as eggs) on the morning you arrive will improve your alertness throughout the day.
17. **Bring your workout gear.** Most hotels have exercise rooms and lap pools. Schedule a 30-minute workout each day you're on the road. You'll feel and sleep better.
18. **Make it dark and cold.** The view from your hotel-room window is superb. But use those heavy room-darkening shades to shut out light during the hours you plan to sleep. Also, lower the room's temperature. Manipulating light and temperature manipulates your body's clock and gives it a clear mandate to sleep. If you're flying during what would be night hours at your destination, try to get some sleep on the plane by turning the air conditioning valve on high.

19. **Avoid airline food.** Another cue your body uses to set its internal clock is food. Since airline food is served onboard according to the time at your home base, eating it can sabotage efforts to reset your clock to the time zone to which you're traveling.
20. **Fly business or first class.** If you're flying overnight and need to hit the ground running in the morning, book a business or first-class seat so you can get some sleep. When sitting upright in a narrow economy seat with no leg room, your body generates adrenaline-like substances to keep blood flowing up to your brain. The adrenaline keeps you from sleeping, and if you do doze off, it keeps you from entering into a restorative sleep.

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