

Recommendations for Jet Lag

WHY YOU GET JET LAG

When flying eastward you have to shorten your day. When flying westward you have to lengthen your day. Flying across time zones generates two problems:

- 1) Sleep deprivation
- 2) Circadian (body rhythm) desynchrony

The two problems interact because desynchrony can lead to inefficient sleep and the accumulation of sleep debt. Thus when you try to sleep when your body clock is telling you to be active, you do not sleep well (or long) and a sleep debt will begin to build. The feelings of intense sleepiness during the flight (one of the main symptoms of jet lag) are the result of both an accumulated sleep debt as well as an internal signal coming from your body clock telling you its time to sleep. Sedative/hypnotic agents (sleeping pills) help you counteract the build-up of sleep debt by allowing you to (temporarily) overcome the lack of synchrony with your internal clock. Once the clock has been synchronized to local time, sedatives are no longer necessary.

Melatonin administration* will speed up the process of resetting your body clock to the local time. For some people it is mildly sedative as well (it speeds up the process of falling asleep). Melatonin is normally made at night (from 9 pm to 9 am) when it is dark, and appears to be a hormonal signal in response to darkness. By taking melatonin orally at a time when it is not being produced internally, you are tricking the melatonin receptors in the brain into resetting the body clock; if you take oral melatonin at the same time as your own internal production, there may be no effect. Specifically, oral melatonin taken at the beginning of your internal production will set your clock earlier, while melatonin taken at the end of internal production will set your clock later (an opposite effect). Thus it is important to take the melatonin at the correct time in relation to your body rhythms. Please check with your physician about possible interactions between any other medications you are taking and sedative/hypnotics.

A significant contribution to jet lag results from the sleep deprivation associated with overnight flights in an uncomfortable airplane seat. If you cannot afford first class think about taking a first class pillow on the plane and sitting next to a window where you can lean your head against the wall. Also take an old pillow you may want to throw it away when you arrive so you don't have to carry it. Also a good quality eye mask helps as does some soothing music on your ipod or portable cd player.

Recommendations for an Eastward Flight

Most (but not all) people find that jet lag is worse after an eastward flight. Because the cycle of the internal body clock is longer than 24 hours, it is more difficult to shorten your day than to lengthen it.

Example: A flight to London. To prevent sleep deprivation, I recommend a sleeping med when flying overnight to promote sleep at an earlier hour (remember your day is short). Have a drink on the plane, then put on the eye mask and take your sleeping pill (don't watch the movie). Of course, a sleeping pill is also helpful in promoting sleep when you are in an uncomfortable position. Sleep medication is helpful for the first 3-5 nights after you arrive at your destination, until your body is caught up to the local time. Also, it is justifiable to use a sleeping pill after you arrive because of sleeping in a novel environment. Halcion is not recommended because it has been associated with amnesic episodes, especially when combined with alcohol. I prefer Ambien 5-10 mg or Sonata (new non-benzodiazepine sedative-hypnotics that appear safe and effective). With any sleeping pill, alcohol intake should be quite conservative (I recommend no more than one drink).

To reset the body clock with flying in an eastward direction, it is necessary to promote a phase advance (resetting the body clock to an earlier time). To advance your clock, take melatonin at the time of departure. On arrival calculate the time for taking melatonin by adding the number of time zones crossed to 3 p.m. For example, on arriving in London (8 time zones from Portland), melatonin would ideally be taken at 11 p.m. local time the first night. On a shorter trip, for example New York, should take it at 6 p.m. on the first night. On the subsequent 3-4 nights (as your internal rhythm adjusts), melatonin can be taken an hour or two earlier each day. For example, 10 p.m. on day 1 in London, then 9 p.m. on day 2 etc until you feel you have adjusted to local time then stop. There is a known interaction between melatonin and sleeping medication.

Recommendations for a Westward Flight

Most (but not all) people have less jet lag after a westward flight compared to an eastward flight. Because the natural cycle of the internal body clock is longer than 24 hours, it is usually easier to lengthen your day than to shorten it.

Example: A flight to Tokyo. When traveling westward, getting to sleep is less of a problem than staying asleep. Therefore sleeping medication with a longer duration of action, e.g. ProSom, Rovenol, Ambien (see above), will help prevent the accumulation of sleep debt. Sleep medication also helps counteract the discomforts of the flight and allows one to sleep at times when the internal clock is promoting alertness. With the use of any sleeping pill, alcohol intake should be quite conservative (I recommend no more than one drink).

To reset the body clock in a westward direction, you need to take melatonin at a time that promotes a phase delay (resets your clock to a later time). To delay your clock, take melatonin on the day of the departure. On arrival calculate the time for taking melatonin by subtracting the number of time zones crossed from 6 a.m. For example, on arriving in Tokyo (8 time zones), melatonin would ideally be taken at 10 p.m. local time the first night. On a shorter trip, for example Hawaii, it should be taken at 3 a.m. on the first night (if you happen to be awake). On the subsequent 3-4 nights, melatonin can be taken an hour or two later each day, for example, for Tokyo, 22 p.m. on day 1, 12 a.m. on Day 2, 12 a.m. on Day 3. There is no known interaction between melatonin and sleeping medication.

***Melatonin** is currently available in 3 mg tablets or capsules from health food stores and pharmacies. A 3 mg dose is a suitable dose for the applications described. Melatonin is not classified as a drug, so it has not received the testing for safety that is required by the FDA for pharmaceuticals.