



## Your *StopJetLag*<sup>TM</sup> Plan

The information in your *StopJetLag* Plan is designed to help you eliminate the bothersome and often debilitating effects of jet lag. The instructions are prepared specifically for *you* using your *exact* flight schedule. They are the result of an 'expert system' computer analysis and reflect the *ideal* combination of the most effective anti-jet lag measures for your trip. **For best results follow the instructions carefully and completely. Even if you cannot follow all the instructions, the more you follow, the more your jet lag will be reduced.**

To further your understanding of how this comprehensive combination of light exposure, melatonin supplements, meal and activity patterns work to set and reset your body clock, we have prepared the following brief discussion of the considerable scientific work upon which your *StopJetLag* Plan is based.

## Travel Without Jet Lag

The study of body clocks is known as Chronobiology, and *StopJetLag* has been developed utilizing the full spectrum of research in the field under the guidance of one of Chronobiology's preeminent scientists, Dr. Charles Ehret.

### What jet lag is ...

The 'bodyclock' mechanisms in people, also known as circadian rhythms, are under neuro (nerve)-endocrine (glandular) control, and under normal circumstances, function in a synchronized manner. The symptoms known as 'jet lag' are not due to fatigue, but to de-synchronization of body rhythms. The body clock's principal control center is a part of the hypothalamus gland in the brain which processes nerve signals. In order to reset the body clock we must send properly coordinated signals to the hypothalamus and 'trick' it into shifting to a new pattern which fits the time zone at our destination. The principal devices used to accomplish this phase change are known as Zeitgebers (German for 'time giver').

Zeitgebers are agents, such as bright light, food, caffeine, melatonin, exercise, and social or interpersonal stimulation, that regulate or shift the phase of a circadian rhythm, establishing your body clock setting. *StopJetLag* orchestrates the use of these influences on your body clock to achieve smooth, effective time zone transitions... all within the constraints of your flight schedule and typical daily habits.

### And what *StopJetLag* does about it...

*StopJetLag*'s powerful 'expert system' software performs hundreds of calculations, analyzes possible scenarios and ultimately selects the best timing and type of anti-jet lag measures to follow. A basic aim of the program is to switch your behavior to a new time frame as soon as practical during your trip, which **helps you arrive at your destinations alert and 'in-sync' with your surroundings.**

The program's Daily Agendas present the recommended measures in a clear and concise format. Each agenda prescribes the right thing to do at the right time, including when to begin adjusting your behavior to destination time.

### Lighting Levels...

Recent research has emphasized the strong effect bright light can have on a person's body clock. Your *StopJetLag* instructions take advantage of lighting influences, as part of its comprehensive approach. The Plan notes appropriate periods to seek out 'Bright Light' (outdoor or indoor) as well as times to 'Avoid Bright Light'. Bright light is considered to be as close to outdoor daylight as possible; the brighter the better. If it is necessary for you to be outside during the 'Avoid Bright Light' periods, wear sunglasses. **It is best to follow the Bright Light exposure patterns for 2 days after arrival at your destination.**

### Rest/Sleep and Activity Patterns...

One of the most important objectives of *StopJetLag* is to help you avoid sleep deprivation which is often a result of jet lag and compounds the problem. The program determines the best transition schedule to ensure 'core sleep' periods during your trip. By following the recommendations for both rest and activity periods, you will find it much easier to sleep on an appropriate schedule upon arriving at your destination.

### Meals...

*StopJetLag* uses the naturally occurring fluctuations in the body's energy reserves to help switch your sense of time to a new pattern. In your pre-flight days, the Large Meal/Light Meal pattern alternately builds up and depletes glycogen (blood sugar) reserves, which prepares the body's clocks for adjustment. **Light Meal Days are days in which meals should be small and low in both calories (40-60% below normal) and carbohydrates.** Be sure to consume enough food on 'Light Meal' days to avoid any feeling of weakness. **On Large Meal days, consume significantly more calories than usual;** breakfasts and lunches should be high in protein (eggs, meat, fish, dairy products, legumes, etc.), but

suppers should be high in carbohydrates (rice, pasta, potatoes, cereals, etc.). Try to consume 2/3 of your daily protein foods at breakfast and lunch. You can refer to the Plan's Sample Meals page for additional information.

The type of food you eat is important because of the chemical cues specific food types give the body. High-protein meals stimulate the 'catecholamine' pathway which is normally activated early in the morning; it's what wakes a person before his alarm clock rings and it serves to stimulate the body's active phase. High-carbohydrate meals stimulate the 'indoleamine' pathway, which normally occurs in the evening of the circadian cycle when you are winding down to a night of sleep.

**Meals don't have to 'look' like your typical fare for a particular time of day, as long as the content and size of the servings is what's recommended in your Plan pages.** For instance, if the airline is serving a breakfast of either French toast or a cheese omelet, and you are supposed to be having a high-carbohydrate supper, choose the French toast because of its high carbohydrate content.

**Following the *StopJetLag* plan for the final Light Meal day before changing to a new time zone is most critical.** In the natural glycogen cycle, breakfast acts as a signal of phase change to the body - it tells it to start glycogen storage - and a hearty breakfast for the person who has eaten lightly serves as an even stronger signal of phase change. Thus, the **Large Meal breakfast on destination time firmly cues your body to the new time pattern.**

## Caffeine...

Caffeine is another powerful 'zeitgeber'. **If you do not regularly consume caffeinated beverages, use of caffeine during the *StopJetLag* program is not recommended;** proper use of the other 'zeitgebers' will trigger the desired body clock change. If you do drink caffeine regularly, it is **very important** that you follow the caffeine recommendations found in your *StopJetLag* Plan. Decaffeinated beverages can be used at any point during the *StopJetLag* regime.

The facts about what caffeine actually does to our biochemistry may be surprising. Caffeine causes different reactions depending on the time of the day it is ingested, but in general it causes a short period of stimulation soon followed by a drop in the glycogen (blood sugar) level. In other words, caffeine can actually rob the body of available energy reserves. The program takes into consideration the important variations in its effect on your body clock depending on **when** it is consumed, and for this reason some of the instructions for its use may seem odd.

The effective use of caffeine for resetting the body clock is maximized if you can avoid using sugar (sugar substitutes are OK) or cream in your beverages and try not to eat anything sweet at the time you have the caffeine. Also, **proper timing and minimal use of caffeine in the days prior to a time zone shift will increase your sensitivity to its 'trigger' effect during the change-over.**

Be aware that caffeine occurs not only in coffee, tea, colas, and chocolate, but in significant amounts in over-the-counter drugs such as Anacin, Excedrin, and Dristan, plus weight control aids, stimulants (i.e., NoDoz or Vivarin) and diuretics. See the enclosed Caffeine Chart for details on these product's caffeine content.

## Melatonin Supplements: Rules for Use...

Melatonin is a substance naturally produced by our bodies' pineal gland. It is a synthesis of two compounds, tryptophan (an amino acid) and serotonin (a neurotransmitter) and is central to the bodies' preparedness for sleep. Thus, melatonin is another powerful 'zeitgeber' and the recommendations for melatonin supplement use in your *StopJetLag* Plan are based on the latest research of Dr. Alfred Lewy and reviewed by Dr. Charles Ehret. Although the proper types and timing of meals helps your body produce melatonin naturally and at **precisely correct times**, the addition of melatonin pills can enhance this effect. The timing for using melatonin is based on both your personal profile and the flight times in your itinerary. At the recommended times for melatonin on your *StopJetLag* Plan, take a 3 to 5 mg melatonin pill. It is also recommended that you take this same amount of melatonin at **precisely correct times** for no more than 2 days following the change to a new time zone. Thereafter, its' routine use is not recommended as long as proper meal and sleep patterns are maintained.

Consult your physician before using melatonin supplements if you have an auto-immune condition, depressive disorder or are a pregnant/nursing woman. Not for use by children under 12 years of age.

## General Travel Tips

- You should consult with your physician prior to your trip if you have any condition which may be affected by following the regimen in your *StopJetLag* Plan.
- If possible, contact airlines at least 24 hours before flights to request appropriate inflight meals and snacks.
- Pack an 'Inflight Bag' with sleepshade, slipper socks, travel alarm, toothbrush, toothpaste, lip balm and snacks (a few that are high-protein - like cheese or nuts, a few that are high-carbohydrate - like raisins or energy bars).
- Try to wear loose clothing and take your shoes off during the flight.
- Drink lots of fluids during the flight; water is best. The atmosphere inside the plane is very dry.
- Avoid alcohol or limit its use to those periods when your *StopJetLag* Plan says caffeine is OK. Alcohol tends to add to the dehydration problem and red wine, sherry and port can also aggravate head congestion.
- Reduce or eliminate smoking. The carbon monoxide in cigarette smoke reduces the blood's ability to carry oxygen, and can cause headaches or slight dizziness.
- If you wear contact lenses, consider removing them while in flight; the dry atmosphere can cause irritation.
- Reach for a blanket and pillow for the 'rest/sleep' phases noted in your *StopJetLag* Plan. The blanket will help maintain body temperature as your metabolism slows down, and the pillow will help trigger your rest/sleep response.
- To help 'wake to a new time zone' after a rest/sleep period, you need to stimulate circulation with exercise. Get out of your seat, take some deep breaths, stretch and move around as much as space permits. Wake-up mentally by doing something which requires concentration; converse, read, play a game.

## Have a productive and enjoyable trip!

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