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English 102-Alpha
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First Draft of Project 7 (Outline)

Outline for Term Paper

I. Introduction to Jet Lag

- A. Open with information from Scientific American about the effects that jet lag brings about
- B. Topic should be known to everybody for their own benefits
- C. General Statement of topics that will be discussed in my term paper

II. Definition of Jet Lag

A. General

1. State of fatigue after crossing several time zones, U.S. Pharmacist, Balbisi, p. 49.
2. Usually follows a flight through several time zones, Aviation, Space, and Environmental Medicine, Donaldson, p. 654.
3. Transmeridian flight induces jet lag after crossing time zones, Aviation, Space, and Environmental Medicine, Ohkoshi, p. 14.

B. Biological

4. Biological clock-human circadian rhythms mainly involve alterations of entrainment pathways, Circadian Rhythms, Aviation, Space, and Environmental Medicine, p.445.
5. Desynchronization between a person's internal clock and the external environment, Jet Lag, Aviation, Space, and Environmental Medicine, p. B14.
6. Biological clock must be synchronized with the solar cycle of light and dark, Elusive Mechanism of Circadian Clock, American Scientist, p. 29.
7. Rapid transmeridian time zone jet travel induces internal and external desynchronization which produces sleeplessness, Using Outdoor Exercise, Aviation, Space, and Environmental Medicine, p. 1155.

III. Causes of Jet Lag

- A. Crossing time zones, What Causes Jet Lag, Online article
- B. Someone's pre-flight condition, What Causes Jet Lag, Online Article

1. Over-tired
 2. Excited
 3. Stressed
 4. Nervous
 5. Hungover before flight
- C. Dry Atmosphere
1. Dryness in the air starts symptoms right away
- D. Cabin Pressure
1. Being at such a high altitude produces swelling and tiredness
- E. Stale Air
1. This produces tiredness and headaches
- F. Alcohol
1. Effects double or triple while flying
- G. Food and Drink
1. Coffee and Tea
 - a. Abrasive on the stomach due to high caffeine content
- H. Lack of Exercise
1. One of the worst aspects of long flight
- I. Disruption of the body's circadian rhythms, U.S. Pharmacist, Jet Lag, p. 49.

IV. Effects of Jet Lag

- A. Disrupts sleep patterns and results in temporary insomnia, (A-C retrieved from "No More Jet Lag," Online Article
- B. Nausea results from digestive problems.
- C. Some cases result in severe flu
- D. Influences the number and circadian rhythm of circulating lymphocytes, Flight and Lymphocytes, Aviation, Space, and Environmental Medicine, p. 18.
- E. Difficulties maintaining sleep (E-H retrieved from British Journal of Sports Medicine, Identifying Some Determinants, Waterhouse, p. 54).
- F. Fatigue
- G. Loss of motivation

H. Decreased interest in food

I. Disorientation (I-L retrieved from “What is Jet Lag,” Online article).

J. Becoming irrational or unreasonable

K. Dehydration

L. Discomfort in legs and feet

M. Include interview about what Spencer Morris and Jeff Robinson thinks what some of the effects of jet lag are. I also plan to include a flight technology instructors’ thoughts here. I plan to visit the airport within the next few days.

V. Who Jet Lag Effects

A. Everybody on a long flight suffers to some extent but not to the same degree, Who Gets Jet Lag, Online article

B. Study of the emphasis on pilots and the results of the research, Circadian Rhythms in Airline Pilots, Aviation, Space, and Environmental Medicine, p. 445

C. Passengers Passenger

1. Stressed Passengers, Safety, Aviation, Space, and Environmental Medicine, p. 432

2. Affects passengers more than flight professionals due to being less accustomed, Who Gets Jet Lag, Online article

D. Sleep patterns of cockpit crewmembers, Sleep Patterns, Aviation, Space, and Environmental Medicine, p. 661

1. May lead to lack of performance and alertness

E. Flight attendants

1. Study on flight attendants’ sleep length and quality after crossing many time zones, Flight Attendants, Aviation, Space, and Environmental Medicine, p.543

2. Survey on flight attendants, Who Gets Jet Lag, Online article

F. Include interviews here also

VI. Techniques for Reducing Jet Lag

A. Behavioral Strategies

1. Exercise

a. Outdoor exercise’s effects on circadian rhythms-very effective, Using Outdoor Exercise, Aviation, Space, and Environmental Medicine, p. 1155

b. Little exercises while on flight helps, Techniques for Reducing Jet Lag, Online article

2. Pre-flight condition of not being stressed always helps, (2-5 retrieved from Techniques for Reducing Jet Lag, Online article)

3. Drink fluids while on the plane
4. Sleeping while on the plane
5. Showers get muscles and circulation going again
6. Light visor treatment in resetting human rhythms, Light Visor Treatment, Aviation, Space, and Environmental Medicine, p. 953

B. Pharmacological Strategies

1. Melatonin

- a. Wait until you arrive at the destination to take it, Newsweek, p. 63
- b. It is not recommended here, U.S. Pharmacist, p. 54
- c. Not recommended for alleviation of jet lag while traveling eastward, Use of Melatonin, Ergonomics, p. 1512

2. Temazepam

- a. Has minimal influence on reducing jet lag, U.S. Pharmacist, p. 50
- b. Improved sleep quality, but no drastic effects on performance, Effects of Temazepam, Aviation, Space, and Environmental Medicine, p. 660

3. Triazolam (3-5 retrieved from U.S. Pharmacist)

4. Zolpidem

5. Caffeine

6. Should I use this article for this section, No More Jet Lag, Online Article

7. Reducing fatigue and extending sleep will help, Do Subjective Symptoms, Ergonomics, p. 1524.

VII. Conclusion to Jet Lag information

- A. Refer back to information from Scientific American to conclude the paper
- B. Rephrase introduction to conclude why jet lag should be known to everybody