



## Lecture 18:

# Jet Lag and Athlete's Foot

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# Jet Lag:

- Jet lag is a **circadian rhythm sleep disorder** caused by travelling across time zones.



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- It is one of the **silent busters** of performance in sports.
- Jet lag occurs due to mismatch between the body's biological clock with that of destination. In fact, the body's biological clock falls behind, which affects the pineal and pituitary glands in the brain, leading to disruption of sleep – wake cycle.

# Symptoms of Jet Lag:

- Excessive daytime sleepiness
- Difficulty falling asleep
- Frequent awakenings
- Trouble remaining asleep
- Headaches
- Poor concentration
- Fatigue
- Depressed mood, and irritability
- Gastrointestinal symptoms, such as constipation and diarrhea, are also common.



# Social Jet Lag:

- Social jet lag is a behavioural pattern experienced by many people who travel across time zones.
- It is when your bedtime and awakening time during weekends or days off occur **3 – 7 hours later** than those of weekdays.
- Affects **teenagers** more than adults.

## **Example of Social Jet Lag:**

- **You travel from Toronto (Canada) to Madrid (Spain).**
- **After adjusting yourself, you sleep at 10: 00 PM and wake up at 7:00 AM on weekdays.**
- **Then you notice that you fall asleep at 3:00 AM and wake up at 11:00 AM on weekends.**

# Jet Lag in Athletes:

- A good night sleep is one of the triads of **athletic performance triangle**.
- Failure to adjust jet lag properly is a common reason for a poor athletic performance and it could lead to **athletic discrepancy syndrome**.

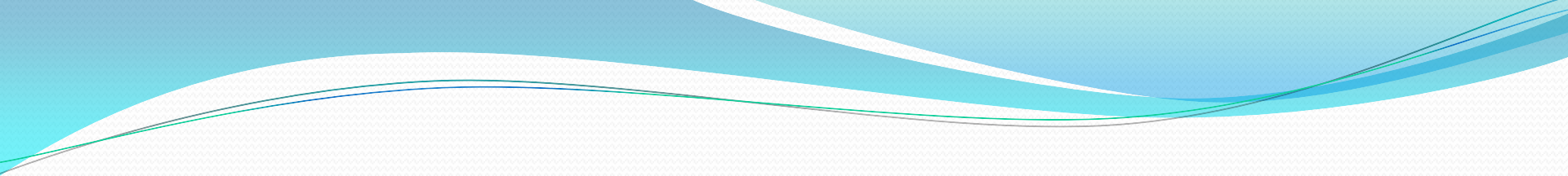


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## Athletic Performance Triangle:

- The athletic performance triangle includes “*proper training*”, “*proper eating*”, and “*proper sleeping*”.
- An optimal athletic performance relies on those three elements, and the lack of any of them would hamper athletic excellence and performance.

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- You may often hear that a team or an athlete was doing well at their home countries, but they fail to demonstrate the same efficiency at the destination. This is why jet lag is a “*silent buster of athletic performance*”.

**Symptoms of jet lag** are transient, lasting typically **2 – 12 days** depending on the following 3 factors:

- **a) Number of time zones crossed.** The more time zones you cross, the severe the symptoms, the more time to adjust.
- **b) Direction of travel.** Travelling from west to east against sun is harder to adjust than traveling from east to west. Traveling north to south or vice versa at the same time zone usually do not cause jet lag. You may experience only a **travel fatigue**.

- **c) Athlete's age.** The younger the age, the less the symptoms, the easier to adjust.
- **For example**, a 15 years old gymnast and a 25 hockey player travel from Toronto to Madrid. Though both athletes traveled at the same direction, the gymnast would suffer fewer symptoms and adjust easier than the hockey player.

# Jet Lag Adjustment in Athletes:

- If you are a professional athlete and compete at the highest level, it is highly important to properly adjust otherwise it would impede your performance.
- The following advices may help you set back your biological clock faster and easier.



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## **Before Travel:**

- a) Adjust your sleep with your destination. When traveling to East, sleep early and wake up early.**
- b) Take a nap sleep on the afternoon before your overnight flight.**
- c) Manage pre – competition anxiety accordingly.**

## **During Travel:**

- a) Hydrate your body very well during the flight.**
- b) Avoid having alcohol and caffeine while flying.**



## **After Travel:**

- a) Do not just remain in your hotel room. Spending more time outdoors and bright light exposure help you adjust easier.**
- b) Follow nutritional supports.**

# Nutritional Supports for Jet Lag:

- **Starvation therapy:**
- There are few studies that show starving yourself for about 16 hours before a long flight or avoiding having anything during the flight (except water) and starving yourself until the breakfast time at the destination may help prevent jet lag.



## Recommended Supplements for Jet Lag:

- a) **Melatonin:**
  - - First night: 6 – 9 mg.
  - - Second night: 6 – 9 mg.
  - - Third night: 3 – 6 mg.
  - - Fourth night and afterwards: 3 mg.
- b) **Glycine:** 500 – 1000 mg at bedtime.
- c) **5 – HTP:** 50 – 100 mg at bedtime (if you are taking melatonin, there is no need to take 5 – HTP).

- d) **NADH:** 10 – 20 mg in the morning on an empty stomach. This product improves your energy level and helps you fight travel fatigue and lassitude.
- e) **GABA (gamma – amino butyric acid):** 750 – 1500 mg at bedtime. It is an inhibitory neurotransmitter formed from glutamine. GABA has a calming effect and promotes a good sleep.
- f) **Ashwagandha extract:** 450 – 900 mg a day. This adaptogenic herb improves stamina and symptoms of jet lag.

- g) **Eleuthero extract (Siberian ginseng):** 300 – 600 mg a day.
- h) **Valerian root extract:** as a tablet 450 – 900 mg, or as a tincture 2 – 5 ml about 30 – 60 minutes before bedtime. It has a calming effect and promotes a restful sleep.
- i) **A high quality B – Complex:** as per instructed. It improves energy level.

# Athlete's Foot

- Also known as **ringworm of the foot, tinea pedis, tinea pedum, and moccasin foot**, athlete's foot is a fungal infection of the foot.
- It is a contagious and persistent infection that most commonly affects the toes and toenails.
- Moisture and warmth resulting from foot sweating facilitate fungal growth.

## **Common places for a person to contact this fungus are:**

- **Gym floors.**
- **Locker rooms.**
- **Public or private showers.**
- **Hotel bathroom.**

## **The three common fungi that cause athlete's foot are:**

- **Trichophyton mentagrophytes (mainly in athletes)**
  - **Trichophyton rubrum (mainly in general population).**
  - **Epidermophyton floccosum**
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- **It affects men three times more than women.**

- **Athlete's foot is characterized by scaling and thickening of the soles, erythema, burning, itching, cracking between the toes, and yellowish-brown toenails.**



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# Potential risk factors for developing athlete`s foot:

- a) Occlusive shoes.
- b) Poor hygiene of the feet.
- c) Weakened immune system for any reasons.
- d) Diabetes mellitus.
- e) Long term consumption of antibiotics or corticosteroids.
- f) Poor digestion and floral dysbiosis.

# Management and Nutritional Supports:

## General Advices:

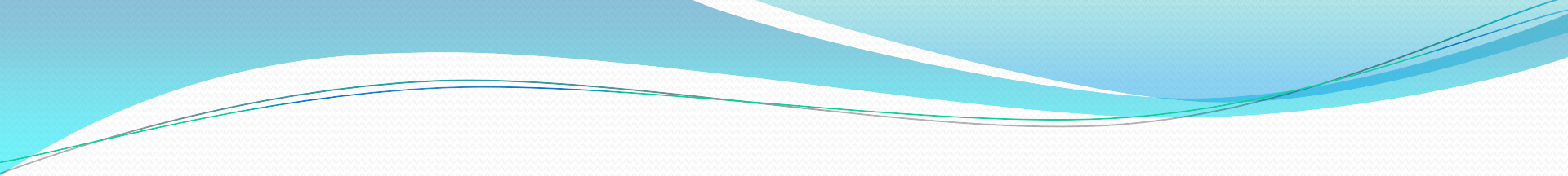
- a) Using open-toe footwear.
- b) Frequent changing of socks.
- c) Keeping the feet dry.
- d) Drying the spaces between toes after bathing.
- e) Wearing sandals or well ventilated footwear around the home and outside.
- f) Washing the feet daily with soap.

# Restricted Foods:

- a) Sugar and sweets. The fungus feeds on sugar.
- b) Refined carbohydrates.
- c) Saturated fats. They slow down blood flow to the area.
- d) Carbonated beverages.
- e) Foods high in yeast and mold: beers, aged cheese, dried fruits, melons, and peanuts.
- f) Fruits juices.

# Recommended Foods:

- a) **Plenty of water: at least 2 liters a day.**
- b) **Legumes.**
- c) **Cold water fish: salmon, herring, and mackerel.**
- d) **Flaxseeds, Chia seeds, and Hemp seeds.**
- e) **Fresh fruits and vegetables.**

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- **f) Oregon grapes. They contain the alkaloids berberine, berbamine, canadine, and hydrastine, which fight fungus.**
  - **g) Unsweetened yogurt.**
  - **h) Garlic.**
  - **i) Ginger.**
  - **j) Cinnamon.**

# Recommended Supplements:

- **a) Tea tree oil:** apply the oil topically onto the affected areas.
- **b) Garlic pill:** 1000 – 2000 mg a day. Garlic contains ajoene, which is a powerful antifungal agent.
- **c) Probiotics:** a product with 10 to 20 billion active organisms per serving.

- **d) Oregano oil** (containing over 50% carvacrol): as a capsule, 300 – 500 mg a day or as a liquid form, 0.5 ml twice daily. Oregano oil has a potent antifungal activity.
- **e) Caprylic acid**: 2000 – 3000 mg a day. It is a fatty acid with antifungal property.
- **f) Echinacea**: 500 – 1000 mg a day.



# Homework:

- 1) Describe how jet lag could negatively affect athletic performance.
- 2) Describe how an athlete could develop a fungal infection at his feet.



