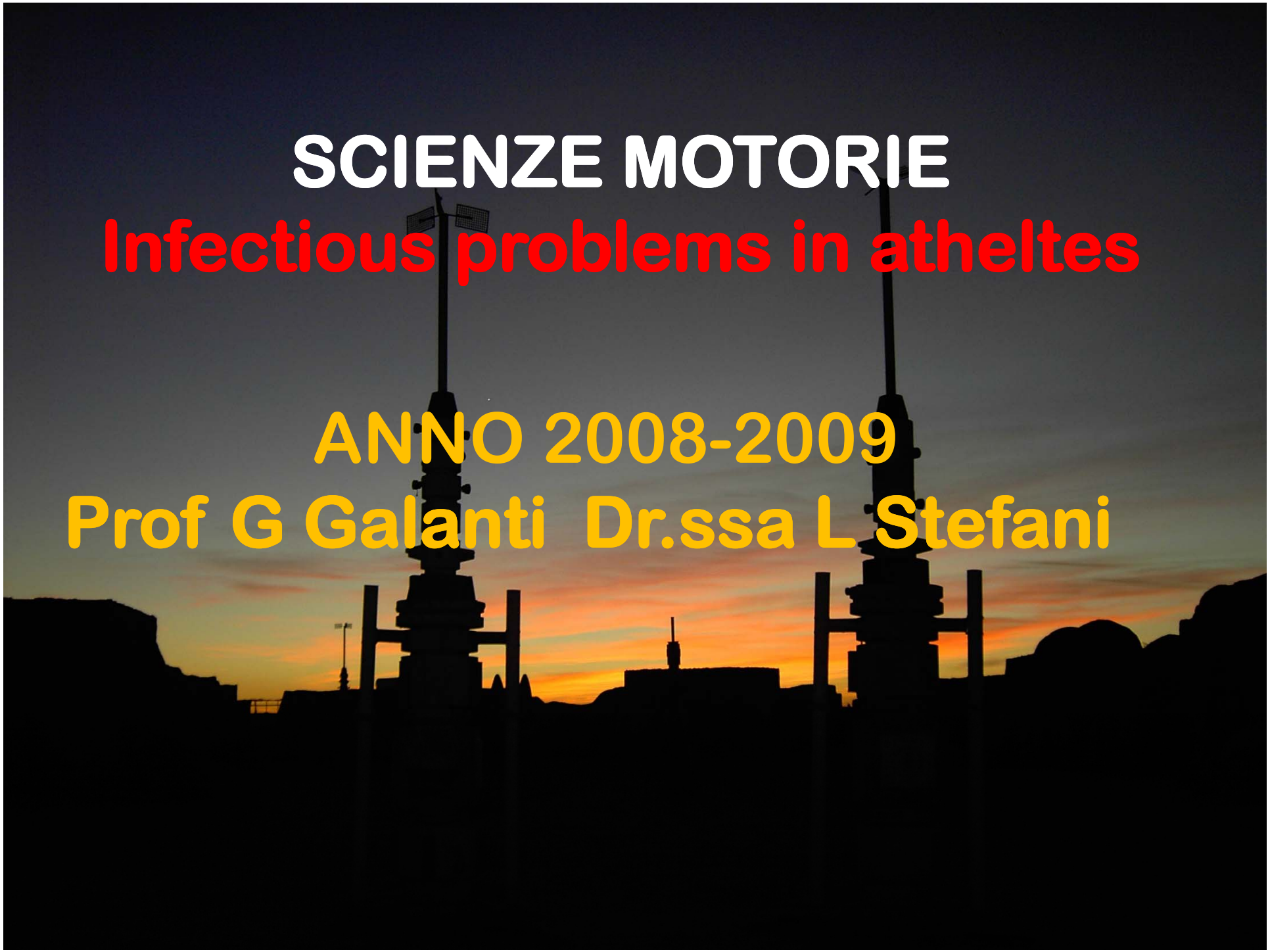
SCIENZE MOTORIE
Infectious problems in atheltes
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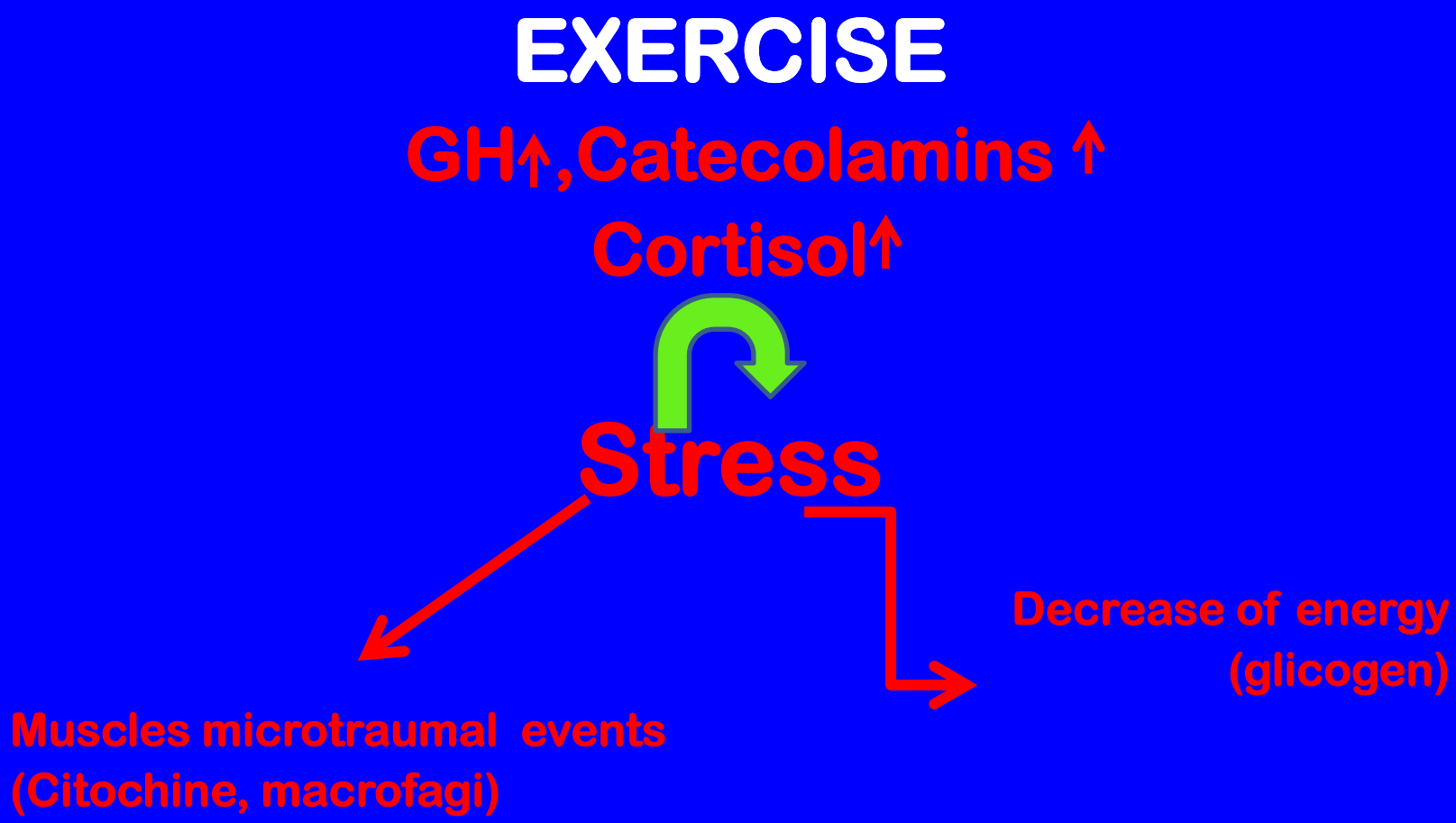
# Infectious problems in atheltes : an overview

Infection conditions constitute a significant proportion of those problems that hinder athlete-recreational or elite, who enjoys training exercising , competing or performing.


# Infectious desease related with Immunity system

- Infectious are strongly related to the Immunity system
- Sport activity represents a prevention for Cardio V desease , but has an impact also to the Immunity system
- An inadeguate training can have a negative effect on the immunological system

# Effects of Sport activity in Immunological system



# Immunological system

# Immunological system

Immune system is a collection of biological process whitin an organism that protects against disease

## Cellular Immunity

Linfocities T,B

## Humoral Immunity

# Effects of Sport activity in Immunological system

Strongly related to the quality and quantity of the exercise

Linfocities

↓

After 45 min intense physical activity

↓

CD8-S increase 20%

Natural killer cells increase(6 vv)

# Immunity and moderate physical activity

The risk of infection decrease with the level of physical activity

Moderate activity is associated with a decrease of a risk of infection (IgA level, nutrition and pshycological effects)

Regular exercise determine an incresae of IgA level in saliva

# Immunity and High level of exercise

The positive effect of exercise is not recognizable in intense sport activity( runners are mainly exsposure)

Generally during intense training it has been described a more common tendency to the infectious

A temporary immunodeficiency is present

*Infectious episodies in runners before and after Los Angeles marathon. J Sport Med 1990 ;30:316-28*

# Does exercise predispose to the infections?

***Pedersen and Bruungsgaard (1995)***

*Intense exercise reduces the lymphocyties in blood and the function of the naturale killer mainly responsible for viricidal and antitumor activity .*

*Scretory( mucosal) is also impaired and these chamges create a window of opportunity over a period of an hour or two for pathogenic microorganism*

# Physical activity and infectious

Moderate amount of exercise may be protective?

# The impact of infectious disease on exercise capacity

## Evaluation by VO2 max

**US Military Academy**

**An investigaton on Aerobic capacity after athlete has contracted infectious mononuleosis**

- **The authors found no differences among the groups analyzed regarding the V02 max . This support the hypothesis that if one is afebrile is possible to begin an aerobic program soon .**

# Infectious disease in athletes

- Upper pulmonary tract
- Gastrointestinal tract
- Pulmonary and Cardiac infectious
- Urinary tract infectious
- Skin infectious
- Viral infectious

**The sport medicine physician plays an important role in recognizing, appropriately treating, designing prevention strategies for , and making return-to-activity decisions for athletes who have infectious**

# Effects of exercise during an infectious

- Exercise during mild infectous have no effect
- Viremia increase with high level of exercise

**Treatment**

Antisthamines

Degongestants

Expettorant

Vitamin and mineral support

# Special considerations in athletes

**Susceptibily** of infection increase during precompetition phases and during the immediate post competitions .

**Sympthoms**

- fever
- skin rash
- headache
- nausea
- cough
- conjunctivitis

# How to follow-up

- A return to exercise is guided by cessation of fever ( 14 days)
- If systemic sympthoms, particularly fever and raised HR are present, the rest from exercise is paramount .
- The initial stages of resumption of exercise, moderate aerobic exercise is recomended to stimulate the immune response .
- As the patient tollerate this exercise, the duration and intensity may be increased, untill full return to normal training occurs.

# Upper Pulmonary Tract Infectious

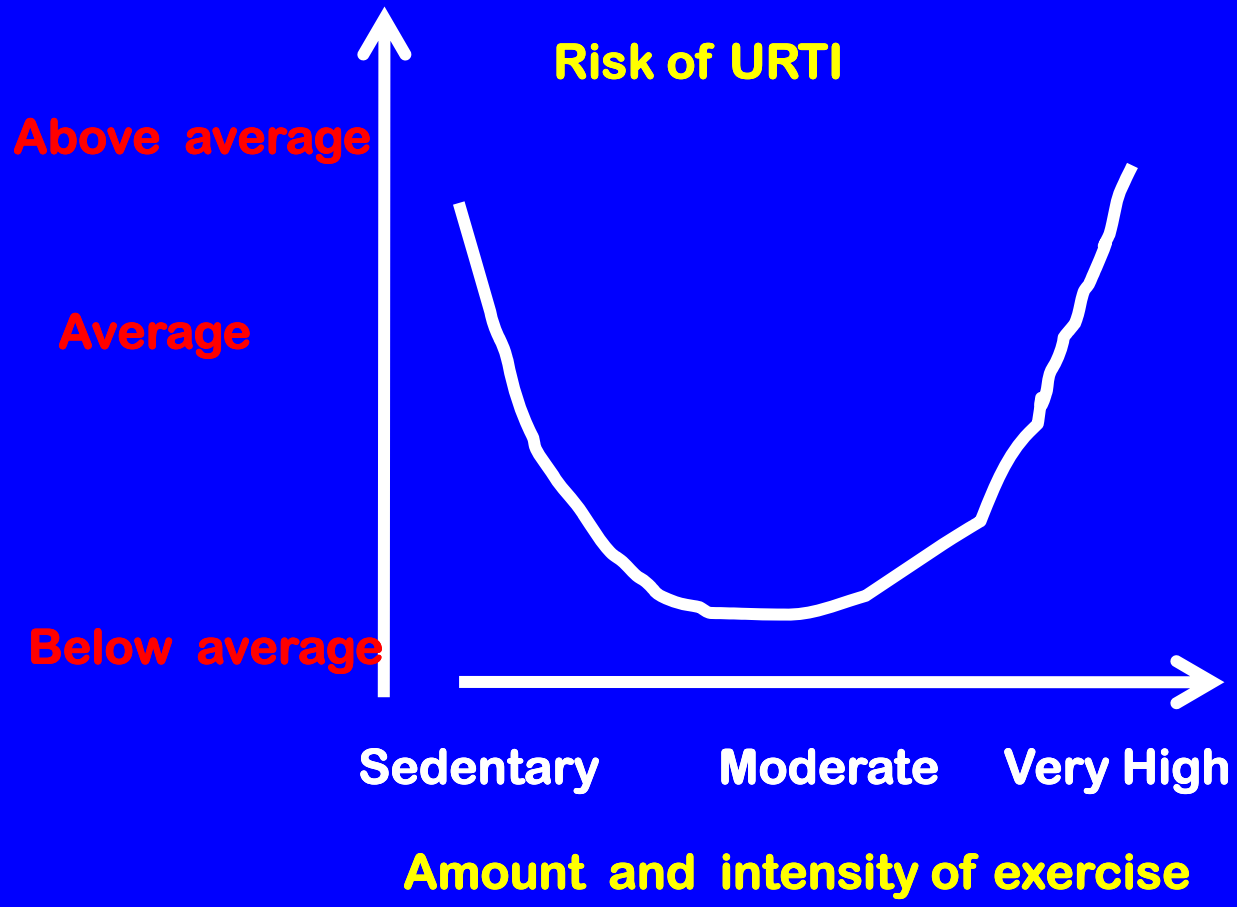
## General considerations

- This is the most common site of infectious in humans
- Trasmission by droplet inalation and saliva
- Virus
- The incidence incease in certain sports( particularly water sport)

# URTI and sport

Several links have been demosntrated among exercise , immune system and infectious .

High level of sport is related with an increase in susceptbility of infectious , conversely moderate activity has been accompained to anedoctal episodies



# Pharyngitis

Etiology : **Viral**
(Adenovirus,Enterovirus,Coxsackie,Herpes virus, EBV, HIV)

**Bacterial**: (Strpetococcus,, Clamidie)

**Non Bacterial:** Mycoplasma

***It could be associated with otitis media,sinusitis and pneumonia***

# Sinusitis

Sinusitis is a very common infection, accounting approximately 4,6% .

Anatomical anomalies and allergies represent the substrate to induce the sinusitis for the reduction of the clearance of the foreing material

# Etiology

**The most common organisms involved are aerobic bacteria**

**Streptococcus, Hemophilus Influentae, Branhamella catharralis**

# Otitis externa

Otitis externa or" swimmer ear" is an infection of the external ear canal frequently affecting individuals involved in sports with repetitive water exposure or mechamical trauma .

The most commonly isolated organisms are Gram-negative ( Pseudomonas Aerouginosa)

# Sympthoms of Otitis externa

The typical presenting complains for otitis externa are **otalgia , pruritus and purulent discharge**

# Conjuctivitis

Conjuctival inflammation may be due to allergies, toxic insult, or infection

Viral or bacterial

The most commonly involved bacterial organism are

staphylococcus aureus epidermidis

# Mononucleosis (EBV)

In industrialized countries around 50% of EBV infectious occur prior to adolescence .

In lower socioeconomic groups and developing countries , EBV sieropositive rates approach 90% by the age of 10 years .

# Mononucleosis (EBV)

Herpes viridae family

Trasmission with contact and infectious of oropharyngeal cells or B lymphocyties .

After an incubation of 30-50 days the sympthoms appear

# Complications in Mononucleosis

**Splenic** : rupture

**Heamatologic** : aplastic anemia , haemolytic

**Neurologic** : encephalitis

**Respiratory**: URTI

**Cardiac** : Disturbance of conduction

**Renal** : GNF

**Gastrointestinal** : Hepaties

# Crucial period of EBV infectious

The acute phase of this ilness resolves over 3 weeks period .

After this period the athletes can gradually increase the activity

To reach preilness level of fitness and competitivness , however the athletes may require 2-3 months

# Urinary tract infectious

# Urinary tract infectious

## Predisposing factors

- Decrease of natural barriers

Increase exposure to colonization of the periuretral area with pathogenic organism.

- In women the menopausal period decrease the resistance to contamination

# Urinary tract infectious

## Predisposing factors

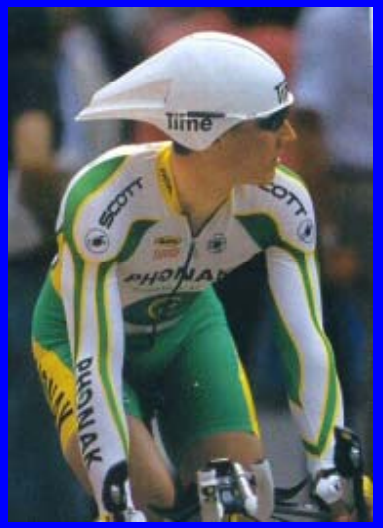
- Dehydration
- Obstruction
- Prostatic Hypertrophy
- Trauma

# Urinary tract infectious

- Cystitis
- Epididymitis
- Urethritis
- Prostatis
- Pyelonefritis

# Sport specific risk for UTI

**Bicy-related** geniturinary problems and often the bacterial infectious is associated with the fungal infectious

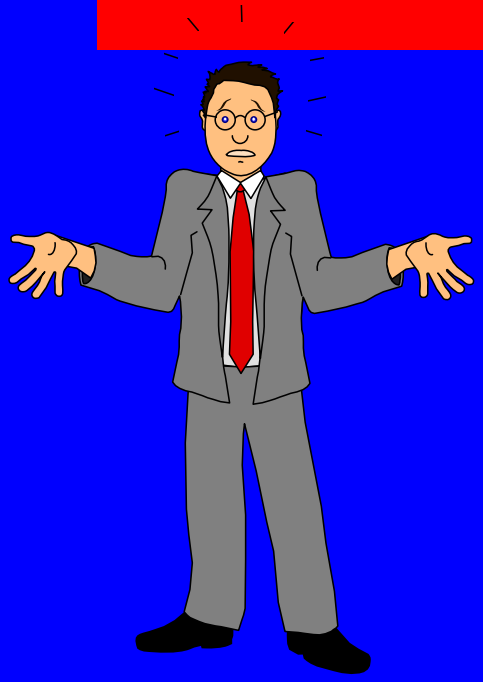


# Sport specific risk for UTI

Athletes with **Spinal Cord Injuries** because there is a gentourinary reflux

**Marathon and ultramarathon**

# Return to partecipation



Athletes should be afebrile for 24 -48 hours .

Hydration must to be take care