

Preparing for Beijing: Lessons Learned

Dr. Greg Anderson

Lunchtime Seminar

Umea University, Umea, Sweden

Team Structure

- **Sport Canada**
 - Canadian Olympic Committee
- **Canadian Soccer Association**
 - Sponsorship
- **Coaching Staff and Manager**
 - Head coach
 - 2 assistant coaches
 - Manager
- **Performance Enhancement Team**
 - MD
 - Physiotherapist
 - Massage Therapist
 - Athletic Trainer
 - Exercise Physiologist (me)
 - Nutritionist

Coaching Staff

- ✓ **Technical and Tactical preparation**
- ✓ **Olympic Team Selection Criteria**
- ✓ **Pre-Olympic game schedule**
- ✓ **Securing an invitation to your test event?**
- ✓ **Pre-Games training camp location**
- ✓ **Pre-Games training camp arrival departure dates**
- ✓ **Media and communications plan**
- ✓ **Accreditation wish list**

Manager

- ✓ **Budget and Canadian Soccer Association liaison**
- ✓ **Sponsorships**
- ✓ **Travel, accommodations, transportation**
- ✓ **COC and BOCOG communication**
- ✓ **Athlete and staff accreditation**
- ✓ **Accreditation wish list**
- ✓ **Beijing arrival travel routing including equipment transport**
- ✓ **Out-of-village accommodation, food and ground transport, if applicable**
- ✓ **Media and communications plan**
- ✓ **Opening ceremonies plan**
- ✓ **Family and friends plan**

Performance Enhancement Team

- ✓ **Health and wellbeing of athletes**
- ✓ **Physical and mental preparation**
- ✓ **Athletes at risk of exposure to poor air quality (TUE)**
- ✓ **Athlete coping strategies vis-à-vis jetlag adjustments and environmental stresses**
- ✓ **Health and medical strategies (Ducoral, vaccinations, etc ...)**
- ✓ **Athlete individual preferences for alternate sources of nutrients (i.e. bars)**
- ✓ **Thermal mapping your venue**
- ✓ **Know your venue inside and out (warm up procedures, ice availability, management, media mix zones, anti-doping procedures, amenities (toilets), food services, transportation to/from, accreditation access zones)**

Exercise Physiologist

- ✓ **Resource person**
- ✓ **Testing and interpretation**
- ✓ **Physical preparation and planning**
- ✓ **Pre-Games training location and times**
- ✓ **Identifying athletes at risk**
- ✓ **Coping strategies for jetlag**
- ✓ **Coping strategies for environmental stresses**
- ✓ **Thermal mapping of venue**

- ✓ Warm up procedures
- ✓ Cool down procedures
- ✓ Recovery strategies

What were the issues?

- ✓ Heat and humidity
- ✓ Air quality
- ✓ Sport Specific Environment
- ✓ Travel
- ✓ Hygiene
- ✓ GI Issues
- ✓ Cultural Impact
- ✓ Athlete's Village
- ✓ Staging area

Temperature

- **WBGT Beijing**
 - between 24 and 32 during the day
 - puts athletes at risk

Acclimatization v. Acclimation

- **Acclimation strategy before you go**
 - Repeated exposure to heat load
 - Hydration strategies
- **Acclimatization strategy once in time zone (Singapore)**
 - 7-14 days for adaptation
 - Increased blood volume
 - Decreased T_c pre-exercise
 - Increased sweat response
 - Decreased perceived exertion

Heat Adaptation

- **Increase T_{core} to 38.5°C for 60-90 minutes**

- +1.5°C Tcore
- Daily, consecutive exposure for a minimum of 4 days, and preferably 10-14 days
- Use natural or artificial heat

Extreme dehydration can elicit decreases in sweat rate, plasma volume, cardiac output and VO₂

- 1% - sensation of thirst
- 5% - discomfort and thirst
- 7% - difficulty swallowing
- 10% - impaired coordination
- 15% - delirium, potential liver and kidney damage
- 20% - dead, dead, and dead
- ✓ Sweat loss may reach 2-3 L/hr; gastric emptying 500 ml/hr
- Hydration Status

BODYWEIGHT DECREASES (DURING TRAINING)

- Guidelines: Decreases in bodyweight should be < 2%. Decreases 2% or larger can negatively affect performance.

FLUID REPLACEMENT (DURING TRAINING)

- Guidelines: Fluid replacement should be between 80-100%. Aim for 100% as the ideal.

HYDRATION STATUS (PRE-TRAINING)

- Guidelines: Normal ranges for USG are 1.003 – 1.035 g/ml (Recommend < 1.020).
- *Note:* Pre-training samples show acute status prior to training. First urine of the day indicates overall hydration status from the previous day.

Re-hydration

- 1L for each 0.5kg weight loss
- Replace electrolytes with sports drink

Air Quality

“Satellite data reveals Beijing as air pollution capital of the world.”

The Guardian, 2005

“According to the European Space Agency, Beijing and its neighboring north east Chinese provinces have the planet’s worst level of nitrogen dioxide, which can cause fatal damage to the lungs...”

- Pollutants
 - Tobacco smoke

- Exhaust fumes
- Ozone (O₃)
- Sulfur dioxide (SO₂)
- Nitrogen Dioxide (NO₂)
- Particulate Matter (PM10)
- **Pulmonary Issues**
 - Asthma and exercise induced asthma
 - Decreased FEV1
 - Increased cost of breathing
 - Particulate matter in respiratory tract
- **TUE Requests**
 - Obtaining TUE's in Elite Athletes
- **Pollution and Performance**
 - Cycling performance and lung function decreased with increased ozone levels
- **Anti-oxidants may help**
 - Florida-James, 2004
- **Drop in FVC and FEV1 after 1 week**
 - Sporer et al., 2007
- **Drop in FEV1 after 10 days**
- **10% drop in maxVO₂ after 1 week**
 - Anderson, 2007

Travel

Travel fatigue

Long distance, with little time zone change

Symptoms:

- **fatigue**
- **weariness**
- **headaches**
- **Disorientation**

Advice:

- **plan travel in advance**

- minimize stop-overs

Jet Lag

- Rapid trans-meridian travel
- “the catalogue of symptoms associated with rapid travel across multiple time-zones, caused by a sluggish adjustment of the circadian timing system to the timing of the new environment”
- Mismatch between local time and body time
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Symptoms:

- Tired but no sleep
- Hard to concentrate
- Decreased physical and cognitive performance
- Loss of appetite
- GI disturbance

Advice:

- 1 day per time zone west; 1.5 going east

Preparing for Time

Pre-travel

- Plan 1 day for each time zone crossed
- Shift waking and sleeping times before you leave by 3-4 hours
- Pre-hydrate 2-3 days before travel

During Travel

- Stretch often
- Nap often (reduces impact)
- “athlete’s fast” lots of fluids, fruits, vegetables

On Arrival

- Rehydrate with plenty fluids
- Set waking, training, eating times immediately
- Light aerobic activity
- Eat protein (am) and CHO (pm)