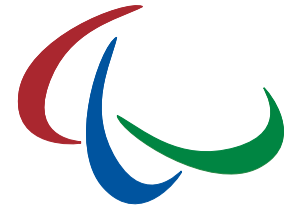


International  
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Committee

# Challenging TUE Issues in Paralympic Athletes

Dr. Cheri Blauwet  
Chair, IPC Medical Committee





# Outline

- TUE management in the Paralympic Movement
  - Ongoing TUE Challenges
    - IPC Catheterization Policy --> glycerol case
    - Beta blockers in cardiovascular disease
  - Potential TUE Challenges
    - Hypopituitarism in TBI
    - Pain medications – neuropathic and other
  - Current Context
  - Conclusion
-



# Outline

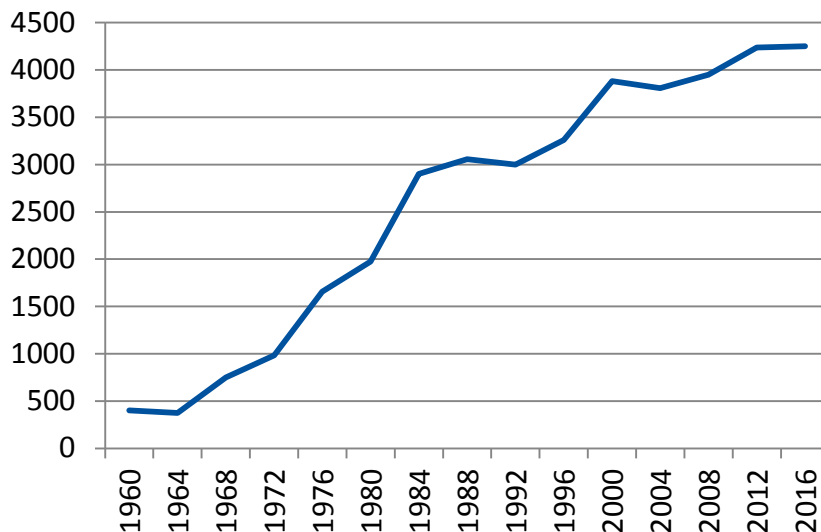
- **TUE management in the Paralympic Movement**



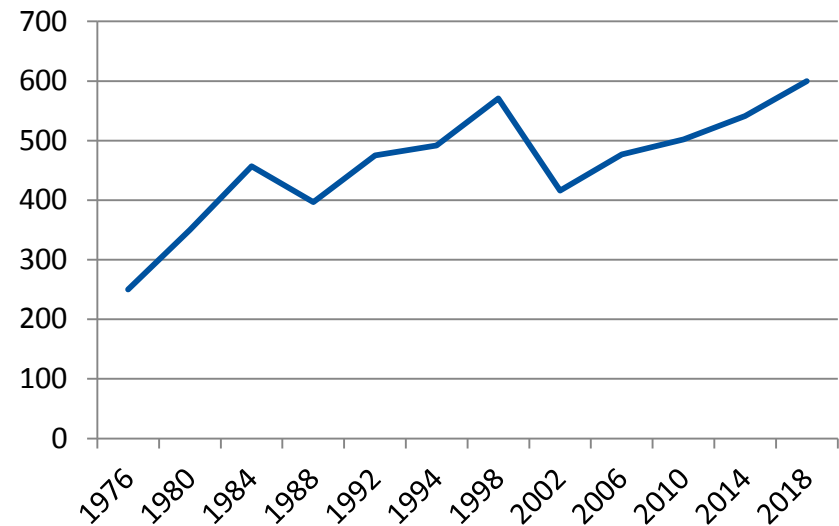
# Rapid Growth of the Paralympic Movement

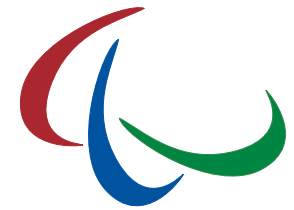
One of the fastest rates of growth in all of sport

## Summer Games



## Winter Games





## Most Paralympians inspire, but others cheat

**P**aralympians are often described as inspirational, even heroic. But as the Paralympics has grown and become more competitive, some advantage-seeking athletes are following the lead of their less scrupulous able-bodied peers: that is, they cheat.

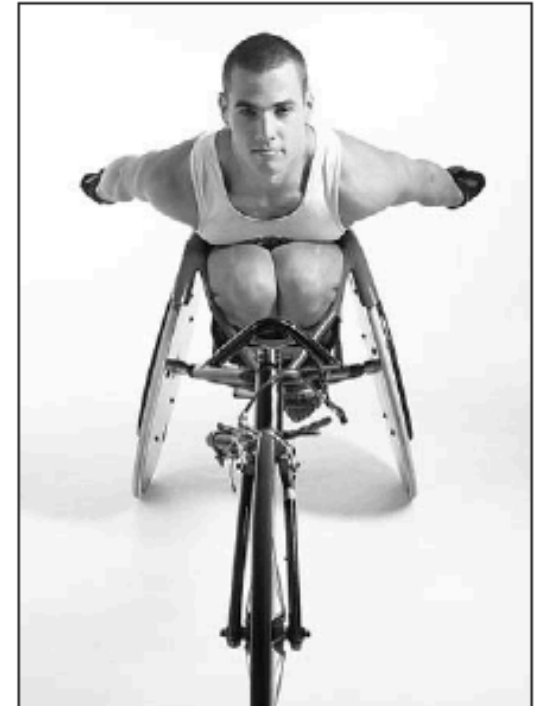
Canada sent 143 competitors to the the Beijing 2008 Paralympic Games (Sept. 7–18) and like the Olympians who recently ran and jumped and swam and dunked in the same facilities, each is a driven athlete with a goal: victory.

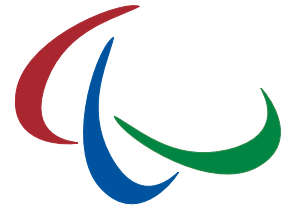
“These are more than feel-good stories” says Dr. Richard Coudie, chief

caught doping, they receive the same penalties — including disqualification and withdrawal of medals — as busted Olympians. The testing itself, however, is more complicated at the Paralympics, especially for athletes who urinate through catheters.

“At the Olympics, everyone pees the same,” says Tardif. “At the Paralympics that is not entirely the case. Doping control officers have to be better trained.”

One form of cheating, called boosting, is unique to the Paralympics and has nothing to do with steroids or stimulants. Athletes with spinal injuries sometimes follow this practice, which could involve sitting on thumb tacks or clamping a catheter to bleed the blood





# “Fairness” vs “Inclusion”





# “Fairness” vs “Inclusion”





# IPC TUE Management

- To date, has relied heavily on mutual recognition
- IPC acts as an IF for emergency TUE processing in 9 sports:
  - Alpine skiing (incl para-snowboard), athletics, biathlon, nordic skiing (cross-country + biathlon), powerlifting, shooting, ice sledge hockey, swimming, wheelchair dance sport
- Additionally, IPC acts as MEO
  - Paralympic Games, Parapan American Games
- Expect substantial changes with 2015 WADC implementation





# Outline

- TUE management in the Paralympic Movement
- **Ongoing TUE Challenges**
  - **IPC Catheterization Policy --> glycerol case**
  - **Beta blockers in cardiovascular disease**



# Ongoing TUE Challenges - Glycerol

- Background: Sample collection via self-catheterization in Paralympic athletes
  - Addressed via IPC “Position Statement on the Use of Catheters at Doping Control”:

*“The IPC considers the catheter used by an athlete with need for self-catheterization as “personal equipment.” ...Furthermore, due to the variety of brands, models and sizes, it cannot be expected that Organizing Committees or Doping Control Officers (DCOs) will supply catheters that meet the individual requirements of each athlete. Within this perspective, and giving absolute priority to athlete health, the catheter used is the responsibility of the athlete. Although not mandatory, it is recommended that athletes use sterile catheters.”*



# Catheterization in Paralympic Athletes

- Frequently, lubricant is used to ease any discomfort associated with self-catheterization





# Ongoing TUE Challenges - Glycerol

- Unintended consequence:
  - AAF of glycerol caused by self-catheterization in doping control
  - Routine analysis by Tokyo laboratory
  - Three specimens containing  $> 1$  mg/mL (above threshold)
    - Two also  $>1.3$  mg/mL (decision limit) - reported as AAF
  - Follow-up study by Okano et al noting possibility of AAF due to glycerol used in self-catheterization (Okano, 2014)
    - Higher concentration for use as lubricant rather than for storage



# Ongoing TUE Challenges - Glycerol

- Many questions remain:
  - Should we educate athletes to obtain a TUE? Or simply not to use it?
  - Should the List be updated to account for different routes of administration?
    - Thresholds recently increased (Kelly, 2013)
  - How can we educate athletes?
    - Update IPC Position Statement
    - Athlete outreach programmes





# Ongoing TUE Issues – Beta blockers

- Prevalence of cardiac disease is higher for Paralympians when compared to their Olympic counterparts
  - Older average age
  - Primary impairment leading to cardiac dysfunction
- In precision sports, beta blockers are prohibited
  - In a Paralympic context, applies to shooting and archery



# Ongoing TUE Issues – Beta blockers

- Several cases have challenged the Paralympic sports community to consider:

## Fairness vs. Inclusion





## Berger Case – 2010

- 52 yo M involved in shooting:
    - Significant heart disease (MI x1 and CABG), on metoprolol for many years
    - TUE for metoprolol granted by NADO
    - TUE rejected by the IPC on grounds that ISTUE article 4.1.b was not fulfilled
    - Athlete appeals to WADA – IPC decision upheld
    - Athlete appeals to CAS – IPC decision upheld (CAS2009/A/1948)
- “β-blocker is performance enhancing beyond the level which might be anticipated by a return to the normal state of health.”***





# Berger Case – 2010

- Decision of the IPC, WADA, and CAS:

## Fairness vs. Inclusion





## Anderson Case – 2012

- 21 yo M involved in shooting
  - History of muscular dystrophy, now with dilated cardiomyopathy (EF 30%)
  - TUE for carvedilol granted by NADO
  - Upon IPC review - decision not to recognize (prior to London Paralympics)
    - Based on Berger precedent (CAS2009/A/1948)
  - Athlete appeals to WADA - IPC decision reversed, NADO decision upheld

***“Use of medication would not produce any additional enhancement of performance other than which might be anticipated by a return to a state of normal health.”***



# Anderson Case – 2012

- Decision of WADA:

Fairness vs. Inclusion





# Ungerank Case – 2014

- 17 yo F involved in shooting (not a Paralympian)
  - History of long QT syndrome, on atenolol to reduce the risk of SCD
  - TUE for atenolol granted by NADO
  - Athlete tests positive, TUE not considered valid by ISSF -> 3 month sanction
  - Upon WADA review, ISSF decision reversed

***“..the current literature regarding the effect of beta-blockers in shooting has to be considered as insufficient to constitute any claim of general performance enhancement.”***

- Upon CAS review, ISSF decision upheld



# Ungerank Case – 2012

- Decision of CAS:

## Fairness vs. Inclusion





## Issues at Play

- Should varied etiologies of cardiac dysfunction result in different TUE decisions?
  - Are some “inherent” to disability while others are not?
  - Is 2015 ISTUE criteria 4.1.b being fulfilled?
- Ongoing confusion and lack of clarity regarding what constitutes a valid TUE for beta blockers
  - Who ultimately suffers? **The athlete.**



# Outline

- TUE management in the Paralympic Movement
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  - Beta blockers in cardiovascular disease
- **Potential TUE Challenges**
  - **Hypopituitarism in traumatic brain injury (TBI)**
  - **Pain medications – neuropathic and other**



# Potential Challenge - Hypopituitarism in TBI

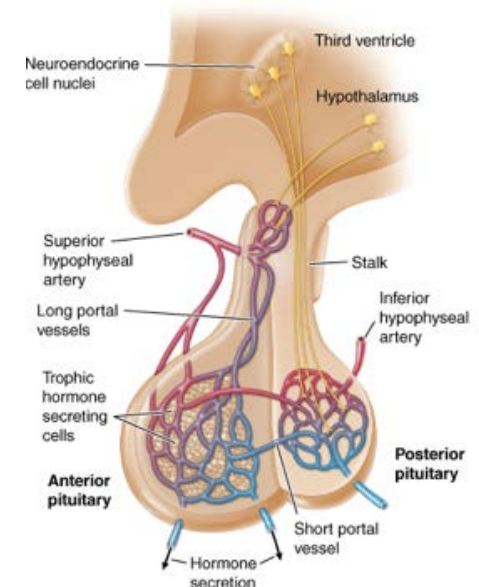
- Common causes
  - Motor vehicle accidents, falls, sports-related trauma (Rutland-Brown, 2006)
  - Dysfunction of the hypothalamic-pituitary axis
  - Initial mechanical shear followed by secondary insult of hypoxia, hypotension, increased ICP (Salehi, 2007)
- Prevalence widely disputed – often under diagnosed
- Endogenous hormone production changes over time (Giordano, 2005)





# Hypopituitarism in Traumatic Brain Injury

- Growth Hormone Deficiency (somatotropin axis)
  - Most common, prevalence 2 - 66% (Bushnik, 2007)
- Testosterone deficiency (gonadotropin axis)
  - Also common, prevalence 0 – 29% (Richmond, 2014)
  - 85% recover in 1 year (Richmond, 2014)
- Sports-related TBI can result in deficiencies
  - Not just a Paralympic issue





# Hypopituitarism – TUE Management

- TUE Requirements (USADA)
    - Detailed history of TBI
    - Brain MRI, including cuts through the pituitary (ideal if w and w/o contrast)
    - Laboratory studies (2 independent values no <4 weeks apart)
      - GH deficiency – IGF-1 (Ghigo, 2005)
      - Testosterone deficiency – FSH, LH, testosterone, PRL (Ghigo, 2005)
    - Neuropsychiatric testing
  - Frequent re-assessment is required if close to the time of injury
-



# Potential Challenge - Pain Medications

- Paralympic athletes and pain syndromes – examples:
    - Neuropathic pain in spinal cord injury
    - Joint pain in rheumatoid arthritis
  
  - Multiple classes of medications are utilized (Moulin, 2007)
    - Membrane stabilizers – gabapentin, pregabalin (*not prohibited*)
    - Anti-depressants – duloxetine (*not prohibited*)
    - Opiate-like – tramadol (*not prohibited*)
    - Opiates (*prohibited in competition*)
    - Cannabis (*prohibited in competition*)
-



# TUE Management - Pain Medications

- TUE Requirements
  - Documentation of full History & Physical (including sensory testing)
  - Proof of CNS lesion if applicable (CT/MRI)
  - Proof of PNS lesion if applicable (EMG/NCS)
  
- Evidence of an algorithmic approach is necessary:
  - 1<sup>st</sup> line: gabapentin, pregabalin, duloxetine →
  - 2<sup>nd</sup> line: tramadol →
  - 3<sup>rd</sup> line: topicals such as capsaicin →
  - And finally – consider and/or cannabis (**only if all else has failed!**)



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- **Conclusion**





## Current Context

- In many settings - ongoing socioeconomic disparities for individuals with an impairment
  - Societal stigmaization →
    - Lack of training resources
    - Lack of access to appropriate medical care (sports med and otherwise)
    - Lack of access to knowledge regarding **anti-doping** and the importance of **TUEs**



## Current Context – Athletes First



- As we (the IPC) adjust to changes according to 2015 WADA Code, expect:
  - Ongoing challenges with athlete education
  - Ongoing challenges with AAFs due to lack of information, not mal-intent
  - Must utilize flexibility inherent to the Code in order to consider contextual factors
- **Must strive for clarity, push to harmonize best practices to remain transparent and best serve athletes**



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Thank you.