Doping, Doping Control and Sport

September 12, 2006
Comment on Presentation

- In historical comments several national instances of doping are mentioned
- These are not criticisms or political statements
- There are several points
  - Doping is worldwide
  - Doping works
  - Military has same concerns
- Question – if sport exceeds capability of human, should you:
  - Modify human
  - Or modify rules of sport?
Tour de France 1967
Tom Simpson

- Had traces of amphetamine and methamphetamine in blood.

- Allowed Simpson to train beyond his limit of strength and stamina.

- Televised event caught the world’s and International Olympic Committee’s interest in sport doping.
Ben Johnson

Los Angeles 1984

Seoul 1988
The East German Doping Story

- Doping by the East Germany state took place for 25 years

- More than 10,000 young athletes were doped without their knowledge

- State Sponsored, doctors and coaches began giving athletes the “blue pills” at a young age
  - Pills were steroid Oral-Turinabol (OT)
  - Athletes were told that they were vitamins
  - Pills were known as a “supportive means” for athletes
The East German Doping Story, cont.

- Changes began in female athletes:
  - Weight gain
  - Excess facial and body hair
  - Deepening voices
  - Steroid Acne

- Doctors would make excuses when athletes would ask questions
Heidi’s Story

- At age 16, began receiving Oral-Turinabol (OT)
- By age 18, Heidi weighed 220 pounds, had a deep voice, increased body and facial hair and often mistaken for a man
- According to uncovered medical research records, Krieger received 2,590 milligrams of OT in 1986, the year she won the European Championship
- Career ended in 1991 when physical strain overtook her body
- In 1997, Heidi had a sex change and became legally known as Andreas Krieger
Heidi Krieger

1997 as Andreas Krieger
STATISTICAL RESULTS

WOMEN’S SWIMMING - 1972 OLYMPICS
EAST GERMAN RESULTS

- 2 Individual Silvers
- 1 Individual Bronze
- 2 Relay Silvers
- No Olympic or World Records
STATISTICAL RESULTS

WOMEN’S SWIMMING - 1976 OLYMPICS
EAST GERMAN RESULTS

• 10 of 11 Individual Golds
• 5 other Silver
• 1 Team Gold; 1 Team Silver
• 10 Olympic or World Records
STATISTICAL RESULTS

WOMEN’S SWIMMING - 1992 OLYMPICS
UNITED GERMANY RESULTS

- 1 Gold
- 2 Silver
- 4 Bronze
- 1 Team Silver; 1 Team Bronze
- No Olympic or World Records

Rich Young - 7.31.03
East German Doping Machine


- State sports physician Manfred Hoeppener given 22 month sentence for unlawful use of drugs
The Czechoslovakian Doping Story

- Recent documents show Communist Czechoslovakia systematically and officially administered steroids and other illegal substances to athletes through the 1980s.

- Czechoslovakia had some of its greatest sporting successes during this time.

- Coaches, high-ranking sports officials, and government officials had knowledge of the program.

- This was a “Cold War” campaign to show supremacy over the West, the documents showed.

- Drug examples were nandrolone, norandrosterone and stanozolol
  (from Reuters News August 16, 2006)
Helena Fibingerova
Women's Shot Put Final. Olympic Games 1972
1. Nadezhda CHIZHOVA (SOV) 21.03m.
2. Margitta GUMMEL (GDR) 20.22m.
3. Ivanka HRISTOVA (BUL) 19.35m.
4. Esfir DOLZHENKO (SOV) 19.24m.
5. Marianne ADAM (GDR) 18.94m.
6. Marita LANGE (GDR) 18.85m.
7. Helena FIBINGEROVA (CZE) 18.81m.
8. Yelena STOYANOVA (BUL) 18.34m.

Women's Shot Put Final. Olympic Games 1976
1. Ivanka HRISTOVA (BUL) 21.16m.
2. Nadezhda CHIZHOVA (SOV) 20.96m.
3. Helena FIBINGEROVA (CZE) 20.67m.
4. Marianne ADAM (GDR) 20.55m.
5. Ilona SCHOKNECHT (GDR) 20.54m.
6. Margitta DROESE (GDR) 19.79m.
7. Eva WILMS (GER) 19.29m.
8. Yelena STOYANOVA (BUL) 18.89m.
1998 Tour de France

- Masseur for Festina Team stopped at France-Belgium Border – 400 Doping Items including EPO
- One stage of race annulled due to stoppages
- Doctors and others investigated
- Only 14 teams of 21 original and 100 out of 189 riders complete the race.
- Willy Voet published story “Massacre a la chaine”
Finnish Ski Team 2001

- World Championships – Nordic Skiing
- Athletes, head coaches, and team physicians
- Administered Hydroxy-ethyl starch
  - Doping agent
  - Masking agent
- Thought HES could not be detected!
BALCO

- Non-medical person purportedly selling supplements (ZMA)
  - Along with VP, trainer, and coach

- Indicted on 42 counts:
  - Distribution of anabolic steroids
  - Misbranding drugs with intent to defraud
  - Possession of hGH
  - Money laundering

- Spent some time in prison and house arrest
Conte Comments

- Stresses that he isn't in it for money. He is doing a public service, he says -- helping athletes use performance-enhancing substances in a healthy way.

Goldman Survey – 1995

- 198 Elite athletes surveyed
  - You are offered a banned performance enhancing substance and guaranteed
    - You will not be caught
    - You will win

- 195 athletes said yes would take

- 3 said no would not
Another Question

- 198 Elite athletes surveyed
  - You are offered a banned performance enhancing substance and guaranteed
    - You will not be caught
    - You will win every competition for five years
    - Then you will die
- Would you take it?
Answer

More than half said they would take the substance!!!
35 Olympic Sports

- Summer sports
  - Aquatics, Archery, Athletics, Badminton, Baseball, Basketball, Boxing, Canoe / kayak, Cycling, Equestrian, Fencing, Football, Gymnastics, Handball, Hockey, Judo, Modern Pentathlon, Rowing, Sailing, Shooting, Softball, Table Tennis, Taekwondo, Tennis, Triathlon, Volleyball, Weightlifting, Wrestling

- Winter Sports
  - Biathlon, Bobsleigh, Curling, Ice Hockey, Luge, Skating, Skiing
DEFINITION OF DOPING (FROM WADC) 
(Note: the numbering system reflects that of the Articles of the WADC, Reference 1.)

- 2.1 The presence of a Prohibited Substance or its Metabolites or Markers in an Athlete’s bodily Specimen (concept of Strict Liability)
  - 2.1.1 Each Athlete’s must ensure that no Prohibited Substance enters his or her body.
  - 2.1.2 Excepting when a threshold applies, the detected presence of any quantity of a Prohibited Substance shall constitute an anti-doping rule violation.
  - 2.1.3 As an exception to the general rule of Article 2.1, the Prohibited List may establish special criteria for the evaluation of Prohibited Substances that can also be produced endogenously.
DEFINITION OF DOPING

- 2.2 Use or Attempted Use of a Prohibited Substance or a Prohibited Method.
  - 2.2.1 The success or failure of the Use is not material.
- 2.3 Refusing to submit to Sample collection after notification as authorized in applicable anti-doping rules or otherwise evading Sample collection.
- 2.4 Not being available as prescribed or otherwise missing a test.
DEFINITION OF DOPING

- 2.5 Tampering, or attempting to tamper, with any part of Doping Control
- 2.6 Possession of Prohibited Substances and Methods
- 2.7 Trafficking in any Prohibited Substance or Prohibited Method
- 2.8 Administration or Attempted Administration of a Prohibited Substance or Prohibited Method to any Athlete, or assisting, involving an anti-doping rule violation or any Attempted violation
Doping Control

- Organizations having adopted World Anti-Doping Code
  - International Olympic Committee / International Paralympic Committee
  - International Federations
  - National Olympic Committees (e.g., USOC)
  - National Anti-Doping Organizations (e.g., USADA)
  - Most nations
Doping Control

- WADA has responsibility for doping control program. Implemented through the World Anti-Doping Code
- IOC enforces Code at the Olympics
- IFs enforce Code at International Competitions
- NADOs enforce at National Competitions
- WADA receives financial support from donations by nations
International Military Sports Council

- Military Sports
  Aeronautic pentathlon, military pentathlon, naval pentathlon

- Other Sports
  Basketball, boxing, cycling, cross-country, equestrian, fencing, football, golf, handball, judo, modern pentathlon, parachuting, orienteering, sailing, shooting, ski (nordic and alpine), swimming (including diving, life-saving and water polo), taekwondo, track and field, triathlon, volleyball and wrestling
Formation of WADA

- November 1999, the IOC convened the World Conference on Doping in Sport

- WADA was created based on IOC’s proposal - IOC wanted to take the burden of testing athletes off of the sport federations

- There is a perceived conflict of interest - sports bodies advocating sport are also performing doping controls.
WADA’s Mission

- Seeks to foster a doping free culture in sport
- Educates athletes about the harm of doping
- Reinforces the ideal of fair play
- Sanction those who cheat
World Anti-Doping Program

- Cornerstone – World Anti-Doping Code (WADC)
  - Policy, Rights and Responsibilities

- International Standards
  - Therapeutic Use Exemptions
  - The Prohibited List
  - Laboratories
  - Testing
  - Sanctions

- Model Practices for IFs
Therapeutic Use Exemption (TUE): What is it?

- Athletes like all others, may have illnesses or conditions that require them to take particular medications.
- The medication an athlete is prescribed to treat an illness or condition may fall under the *Prohibited List*.
- If so, a Therapeutic Use Exemption (TUE) may give that athlete the authorization to take the needed medication.

- Two types of TUEs
  - Standard (long) Form
  - Abbreviated Form
WADC

Therapeutic Use Exemptions

- Allows an athlete to use an otherwise prohibited medication:
  - If no performance enhancement above return to normal health
  - No allowed medication is available or appropriate
  - Health of athlete would suffer

- If need is due to abuse of prohibited medication the TUE is not approved
WADC

Therapeutic Use Exemptions

- WADC requires
  - IFs to handle International athletes
  - USADA to handle national level athletes

- WADA may review and reverse TUE’s approved by USADA
Therapeutic Use Exemptions

- Required for use of any prohibited Method or Substance
- Standard Form requires the submission of a complete medical file with the request
- Decision is by a 3 member TUE committee
- This process requires pre-approval by TUE committee
- Includes insulin
Abbreviated TUE

- Abbreviated TUE applies only to:
  - certain beta-2 agonists
  - Corticosteroids by local or intra-articular injection, iontophoresis, or inhalation.

- Notification of use – does not require pre-approval. In most cases no medical file is required.

- Abbreviated form is available
  - www.usantidoping.org
Supplements

• All taken at athlete’s own risk

• WADA laboratory - Cologne Germany
  ▪ Found 94 of 634 samples contained a substance not listed on the label that conceivably could lead to a positive test
  ▪ 45 of 240 USA supplements (18.8)

• Using supplements is playing roulette with your sport career.
Basis for Prohibited List

- Must meet 2 of 3 criteria
  - Enhances or has potential to enhance performance
  - Risk or potential risk to health of athlete
  - Violates the spirit of sport

- Or be masking agent for above
2006 Prohibited Substances In- and Out-of-Competition

1. Anabolic Agents

2. Hormones and related substances

3. Peptide Hormones
   a. Erythropoietin (EPO)
   b. Growth Hormone and Insulin-like Growth Factor
   c. Gonadotrophins (males only)
   d. Insulin
      - Permitted only to treat Insulin-dependent diabetes with the approval from a Full TUE Submission
   e. Corticotrophins
2006 Prohibited Substances In- and Out-of-Competition, cont.

1. Beta-2 Agonists - Formoterol, Salbutamol, Salmeterol, and Terbutaline permitted by inhalation as determined by physician with ATUE

2. Agents with Anti-Estrogenic Activity

3. Diuretics and Masking Agents – includes propecia (finasteride). TUE is not valid if an athlete’s urine contains a diuretic in association with Threshold or sub threshold levels of a prohibited substance.
2006 Prohibited Methods

- Enhancement of Oxygen Transfer
- Chemical and Physical Manipulation
  - Tampering
  - IV infusions
- Gene Doping
2006 Prohibited Substances
In-Competition, Only

1. Stimulants
2. Narcotics
3. Cannabinoids
4. Glucocorticosteroids

Also in certain sports alcohol and beta-blockers
Laboratories

- UCLA Olympic Laboratory is only lab in US at this time

- University of Utah is in process of certification of a second US laboratory – should be done very soon

- 33 labs worldwide

- Accredited to WADA International Standard and ISO 17025
Testing

- Collection of specimens
  - out of competition – no advance notice
  - in competition – based on selection criteria from event

- Completed to WADA International Standard

- USADA completed 8175 tests last year (national & international)
Sanctions

- Are adjudicated by arbitration
- Can be appealed to CAS
- WADA is working to harmonize the Sanctions provided for by IFs and National Anti-doping Organizations
United States Anti-Doping Agency (USADA)

- Independent Agency created as a result of recommendations by the USOC’s select task force on Externalization

- Has full authority for testing, education, research and adjudication for US Olympic, Pan Am, and Paralympic Athletes.

- Works with National Governing Bodies (NGBs) and International Federations (IFs) to implement and enforce rules created by WADA
Legal Status of USADA

- The Senate Committee on Commerce, Science and Transportation oversees matters relating to Olympic Sports in the U.S.


- Public Law 107-67 (section 639) recognizes USADA as the official independent anti-doping agency of the Olympic, Pan American and Paralympic Sport in the United States.
The Mission of USADA

- Dedicated to preserving the well being of sport, the integrity of competition and ensuring the health of athletes through research initiatives and educational programs.

- Responsible for managing the testing and disciplinary process for US Athletes who engage in doping violations.
USADA’s Role With CISM

USADA reviews and accepts Abbreviated TUEs for the US Military members training for or competing in CISM Sanctioned events.

Forms must be:

a. Complete
b. Legible
c. Signed by athlete and physician

These forms are notifications and do not require pre-approval

Abbreviated forms are available on the USADA website: www.usantidoping.org
USADA receives ATUE notification

ATUE is reviewed
Certificate is issued

Original document sent to athlete
CISM Receives notification via fax/e-mails

Copy of notification is retained by USADA
USADA’s Role With CISM

USADA reviews Standard TUEs for the US Military members training for or competing in CISM Sanctioned events.

Forms must be:

a. Complete, including medical file related to request
b. Legible
c. Signed by athlete and physician

These forms are for the use of prohibited medications and must be pre-approved or for an emergency treatment.

The emergency treatment must be for a diagnosis that would threaten the health and well being of the athlete if the prohibited medication was withheld.

Standard TUE forms are available on the USADA website: www.usantidoping.org
USADA convenes a Therapeutic Use Exemption Committee (TUEC) comprised of 3 physicians.

TUEC approves or denies request

Letter and/or certificate issued to athlete.

Original sent to athlete

CISM receives notification via fax/e-mail

Copy of letter/certificate gets attached to athlete’s TUE and is filed by year & sport.
Supplements

- All taken at athlete’s own risk

- WADA laboratory - Cologne Germany
  - Found 94 of 634 samples contained a substance not listed on the label that conceivably could lead to a positive test
    - 45 of 240 USA supplements (18.8)

- Using supplements is playing roulette with your sport career.
What are Steroid Precursors?

- Substances that are converted in the body into steroids which have an anabolic effect
- Being marketed as “dietary supplements” that promise to build muscle
- Manufacturers are not required to perform safety tests
Doping Challenges

- Human Growth Hormone - approaches
  - Detect hGH Isoforms directly
  - Detect Biomarkers of hGH administration

- Designer Steroids

- Exogenous Testosterone
Designer Steroids

- Tetrahydrogestrinone
- Norbolethone
- Trenbolone
Physicians, Coaches, and Trainers

- “Those who are involved in doping athletes or covering up doping should be subject to sanctions which are more severe than the athletes who test positive.”

Drugs, Sports, and Medical Practice

● “The conscious decision of all sport physicians and scientists to play no role in doping practices would offer new hope that sport might continue to represent competition between humans, not laboratory preparations or the products of genetic engineering or polypharmacy.”

● From: Andrew Pipe, MD and Thomas Best, MD, PhD; Clin Journ Sport Med, 12:201-202  2002
Thanks!!

Questions????