



# **Doping, Doping Control and Sport**

## **September 12, 2006**

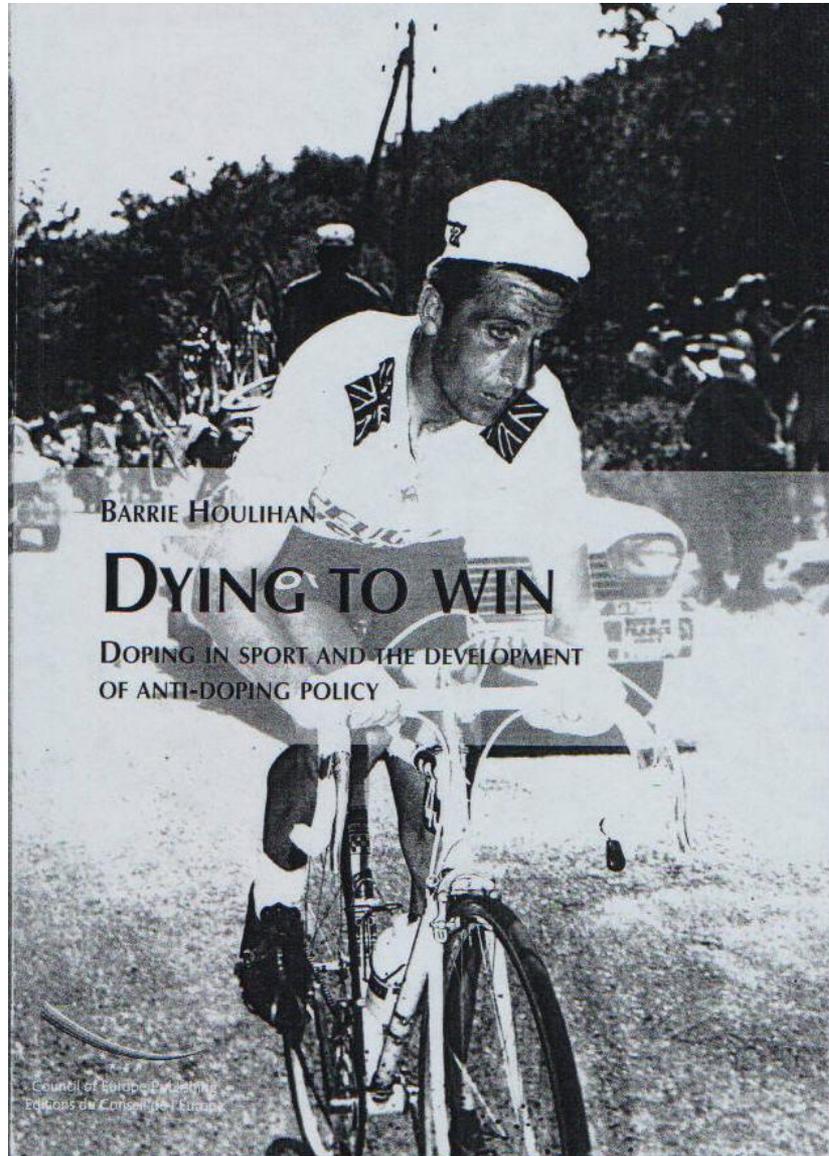
# Comment on Presentation

- **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.



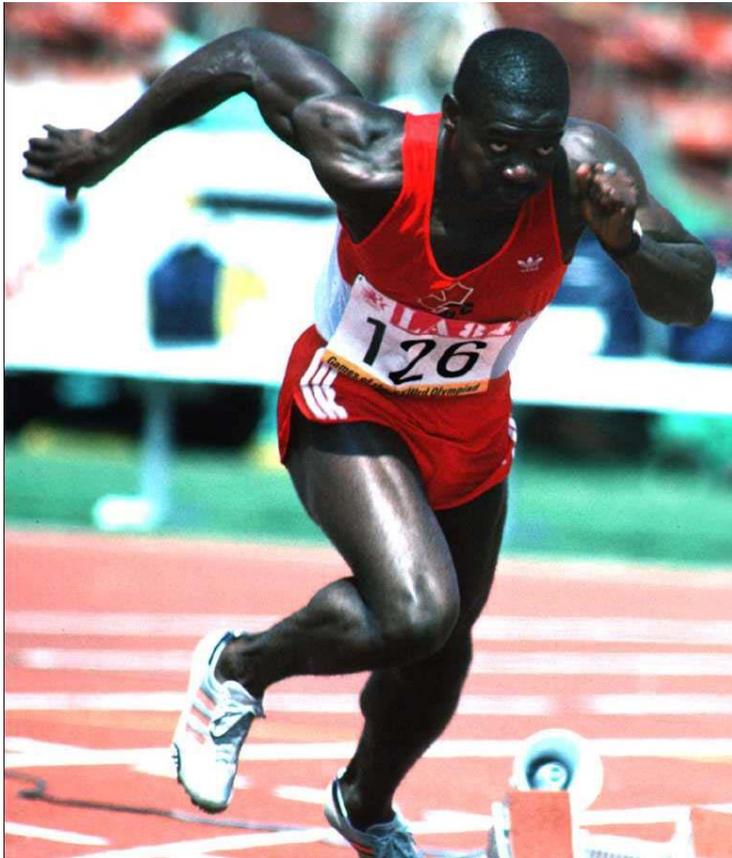
European sports fans were dramatically alerted to the issue of drug abuse in sport by the death of Tom Simpson, aged 29, during the 1967 Tour de France.

The first Englishman to wear the yellow jersey, he was recognised as a leading cyclist of his generation, known for his courage and determination in one of the most gruelling of sports.

Simpson's autopsy revealed that his heart had collapsed and traces of amphetamine and methyl amphetamine were found in his blood supply. While the amount of stimulant was insufficient to have killed him, it led him to go beyond the normal limit of his strength and stamina. The capture on television of his death increased world interest in 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

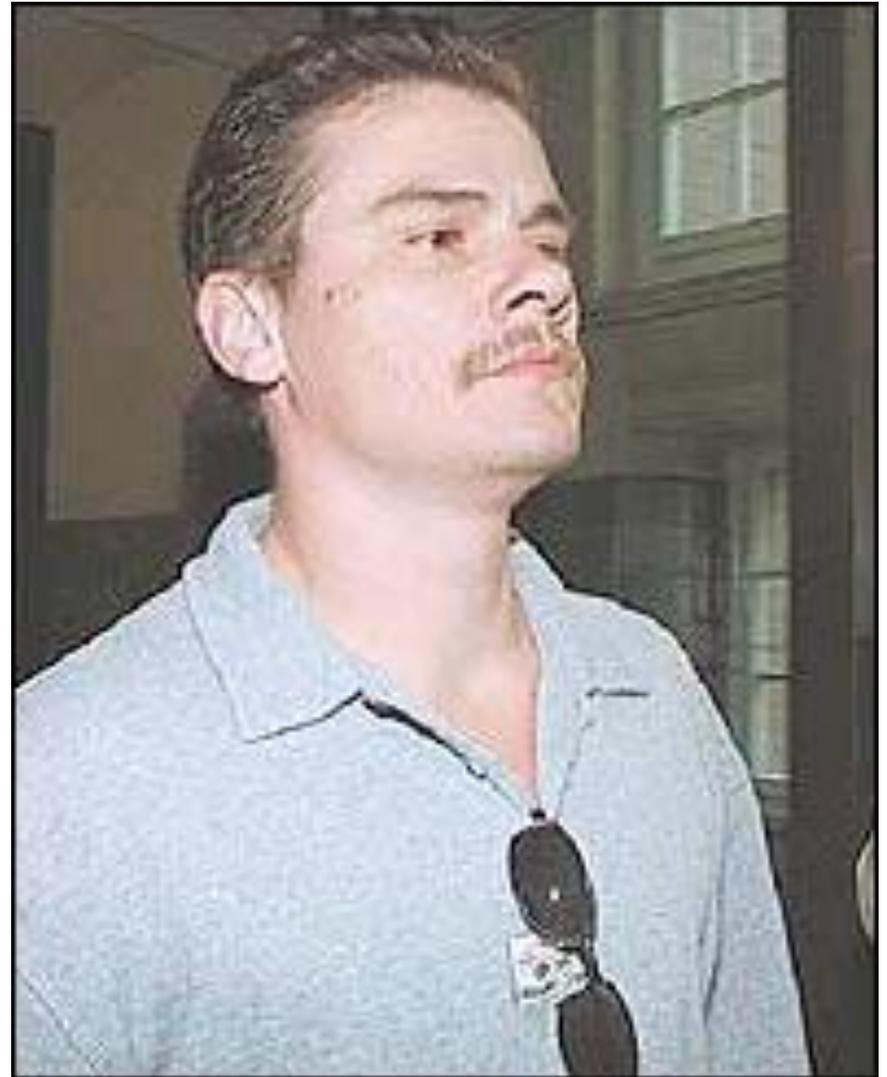
- **At age 16, began receiving Oral-Turinabol (OT)**
- **By age 18, Heidi weighed 220 pounds, had a deep voice, increased body and facial hair and often mistaken for a man**
- **According to uncovered medical research records, Krieger received 2,590 milligrams of OT in 1986, the year she won the European 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



CISM, September 12, 2006

# 1997 as Andreas Krieger



United States Anti-Doping Agency

# **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**

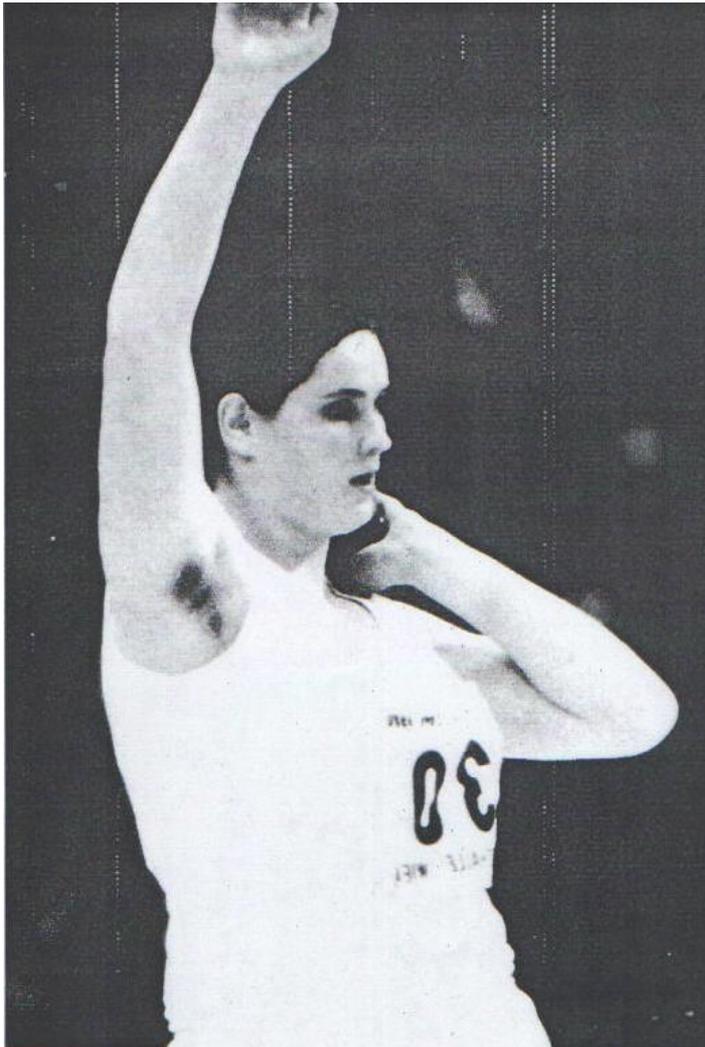
# East German Doping Machine

- Ungerleider, Steven. *Faust's Gold: Inside the East German Doping Machine*. 1<sup>st</sup> Edition. New York: St Martin's Press, 2001
- State sports physician Manfred Hoepfener 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**

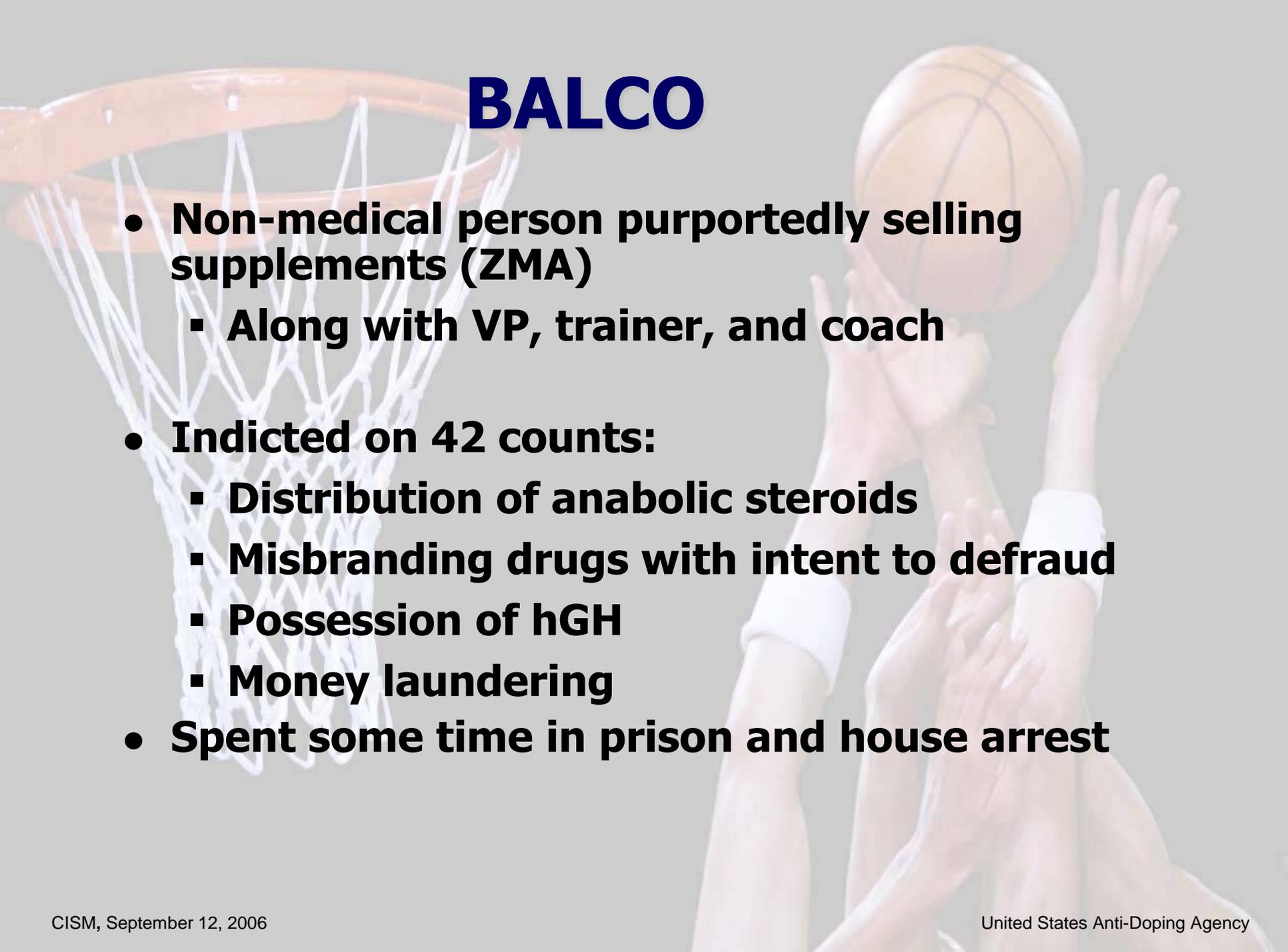
- **1. Ivanka HRISTOVA (BUL) 21.16m.**
- **2. Nadezhda CHIZHOVA (SOV) 20.96m.**
- **3. Helena FIBINGEROVA (CZE) 20.67m.**
- **4. Marianne ADAM (GDR) 20.55m.**
- **5. Ilona SCHOKNECHT (GDR) 20.54m.**
- **6. Margitta DROESE (GDR) 19.79m.**
- **7. Eva WILMS (GER) 19.29m.**
- **8. Yelena STOYANOVA (BUL) 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!**

The background of the slide features a faded image of a basketball hoop on the left and several hands reaching upwards towards a basketball on the right. The text is overlaid on this background.

# 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**

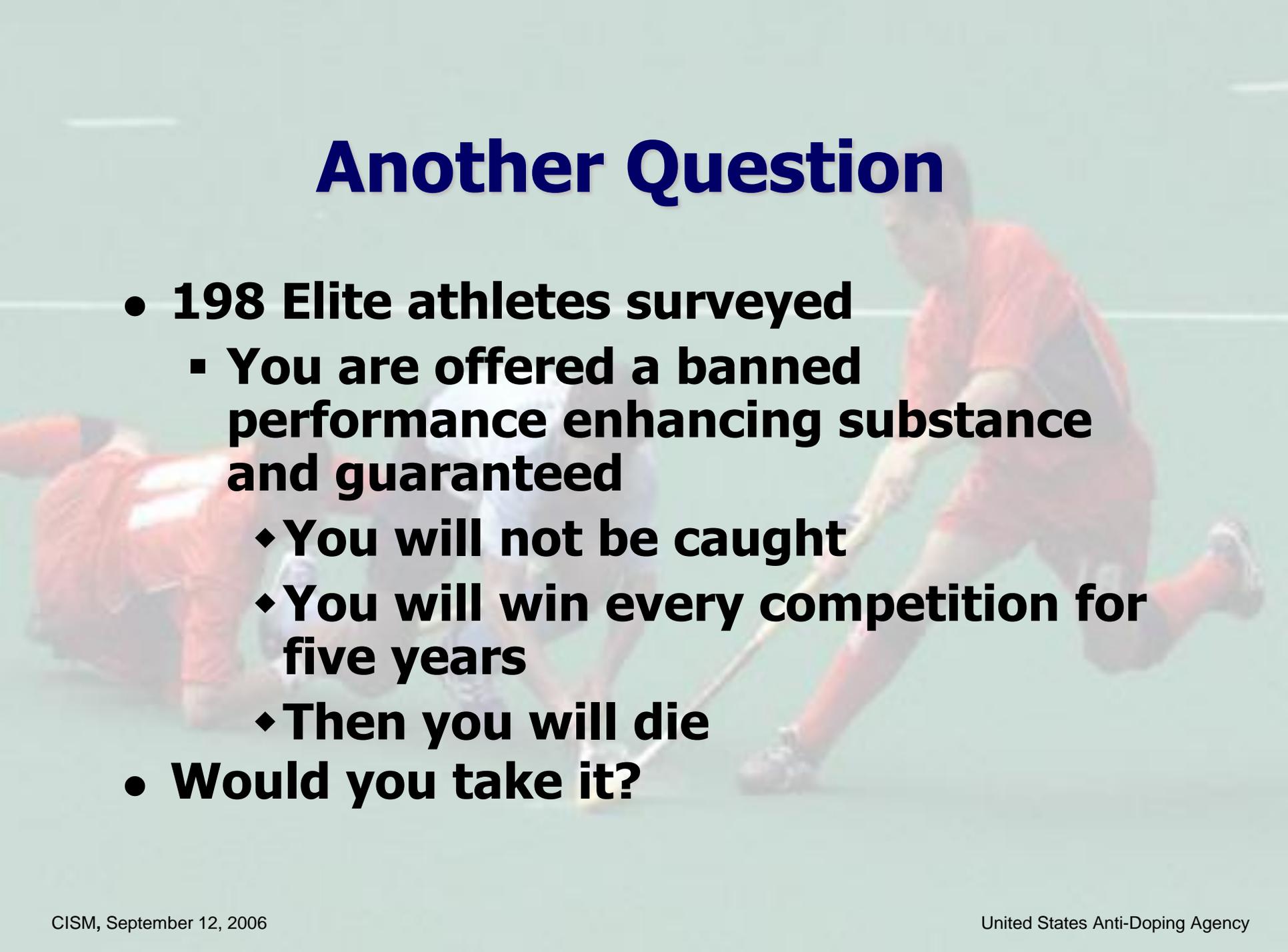
# Conte Comments

- **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**
- From:  
**[http://www.playboy.com/magazine/big\\_guy/index.html](http://www.playboy.com/magazine/big_guy/index.html)**

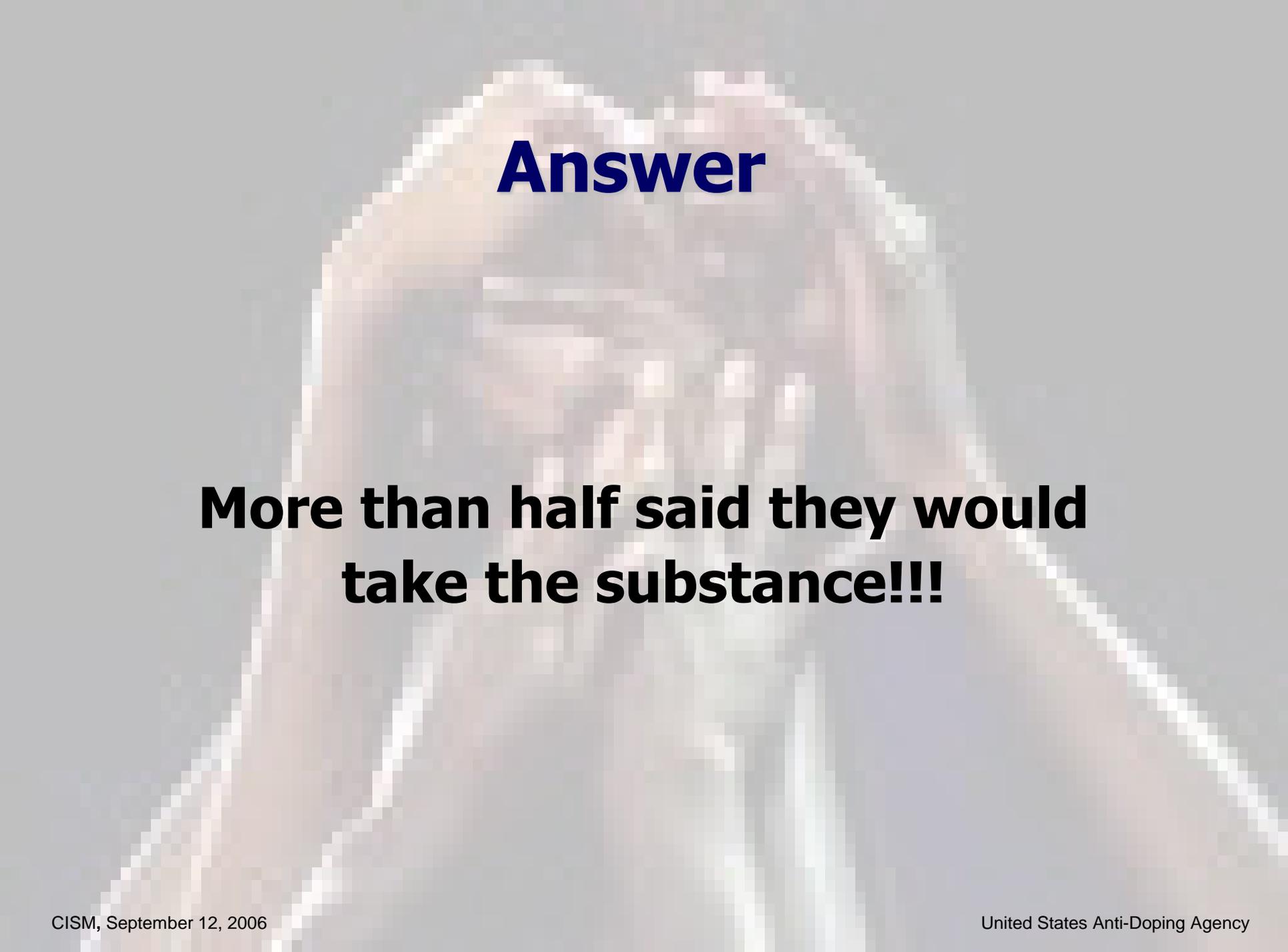
# Goldman Survey – 1995

- **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](http://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**

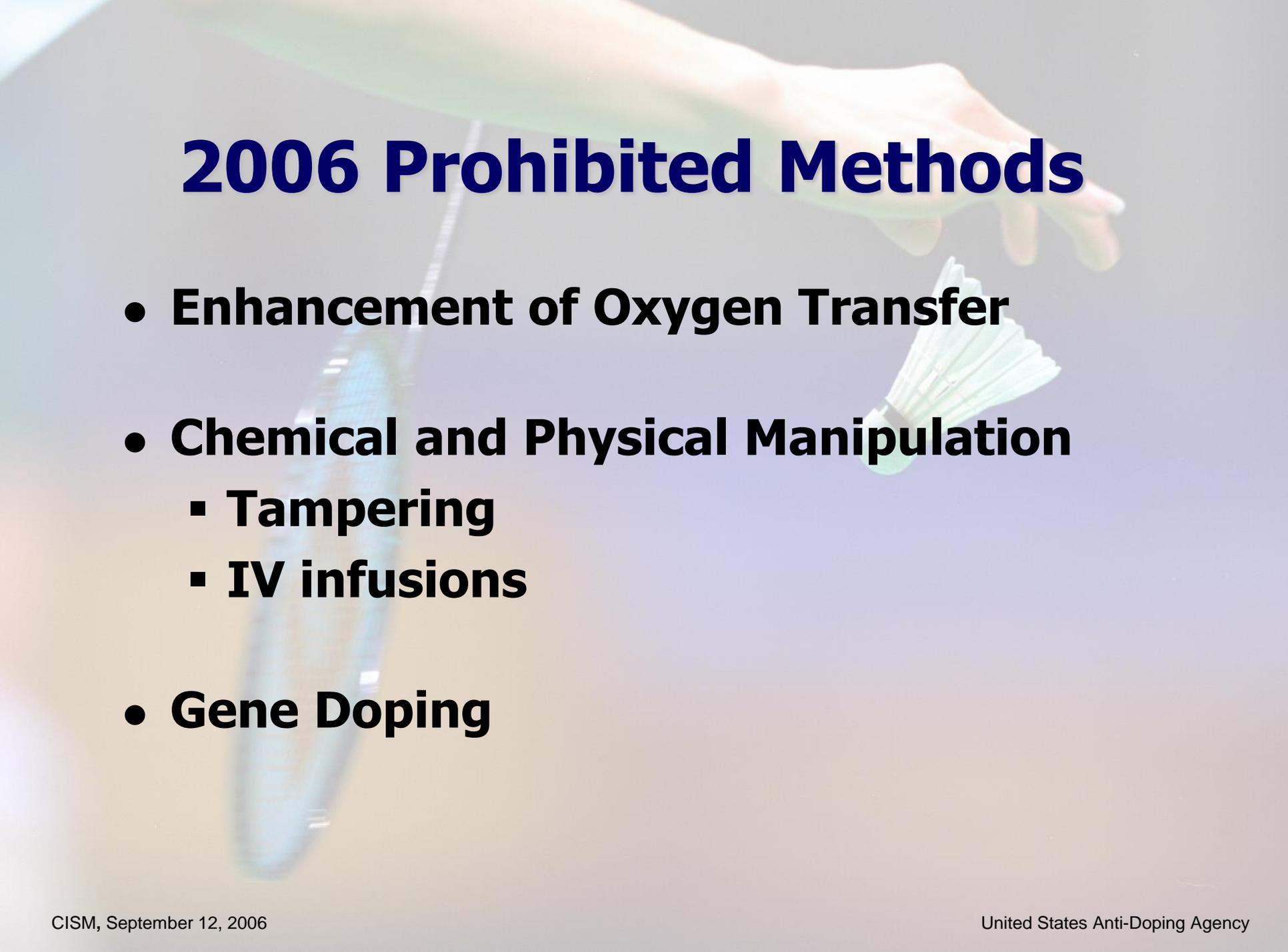
- **Must meet 2 of 3 criteria**
  - **Enhances or has potential to enhance performance**
  - **Risk or potential risk to health of athlete**
  - **Violates the spirit of sport**
- **Or be masking agent for above**

# **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.**

A hand holding a tennis racket against a blue background. The hand is positioned at the top right, and the racket is angled downwards. The background is a gradient of blue and white.

# 2006 Prohibited Methods

- **Enhancement of Oxygen Transfer**
- **Chemical and Physical Manipulation**
  - **Tampering**
  - **IV infusions**
- **Gene Doping**

# 2006 Prohibited Substances In-Competition, Only

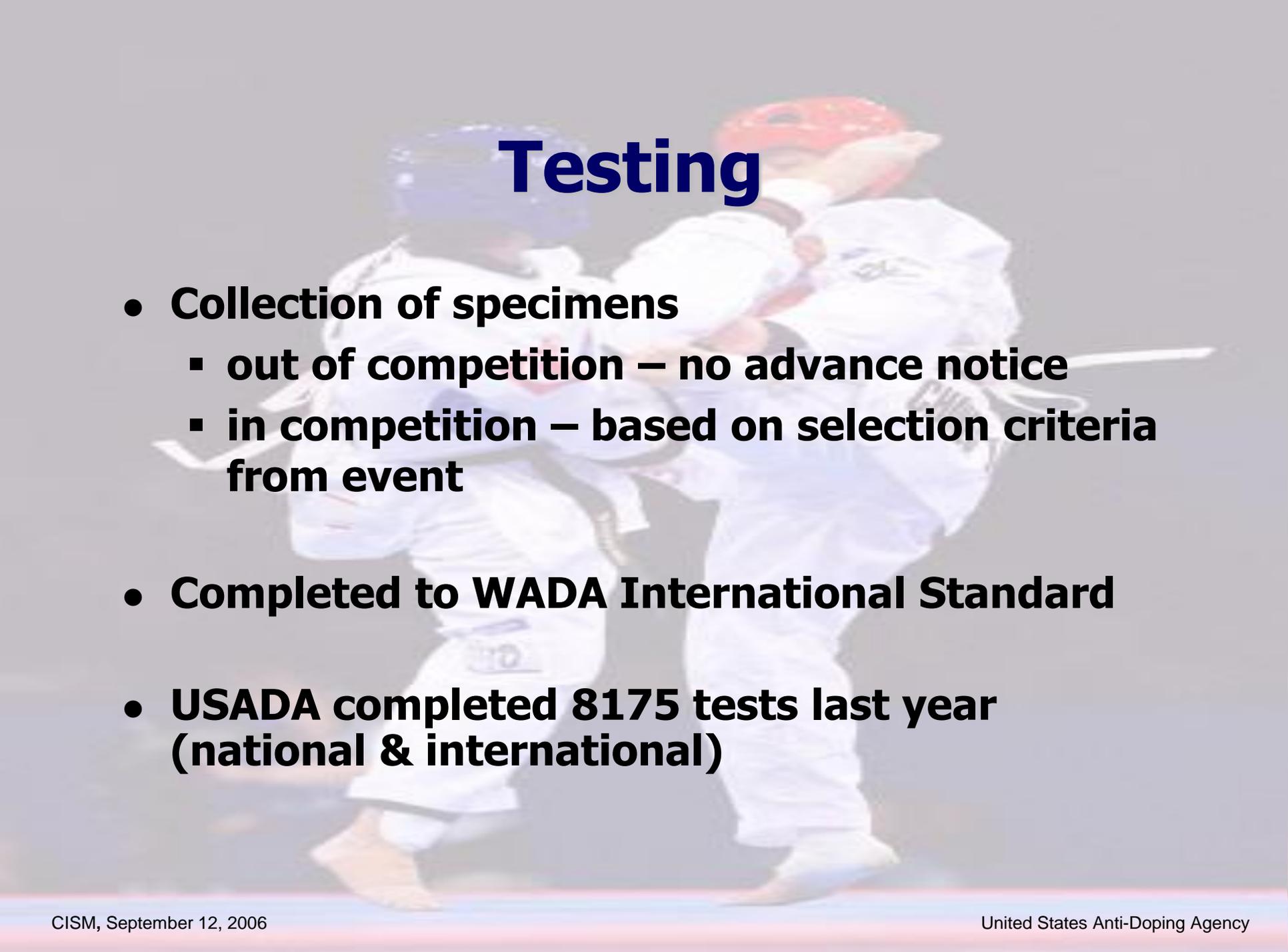
1. **Stimulants**
2. **Narcotics**
3. **Cannabinoids**
4. **Glucocorticosteroids**

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.**
- **The Ted Stevens Amateur Sports Act governs the Olympic Movement in the United States**
- **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](http://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](http://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**
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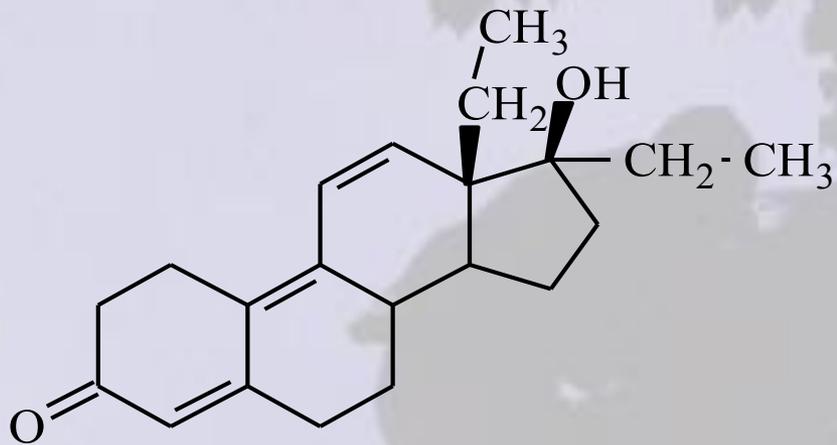
# What are Steroid Precursors?

- 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

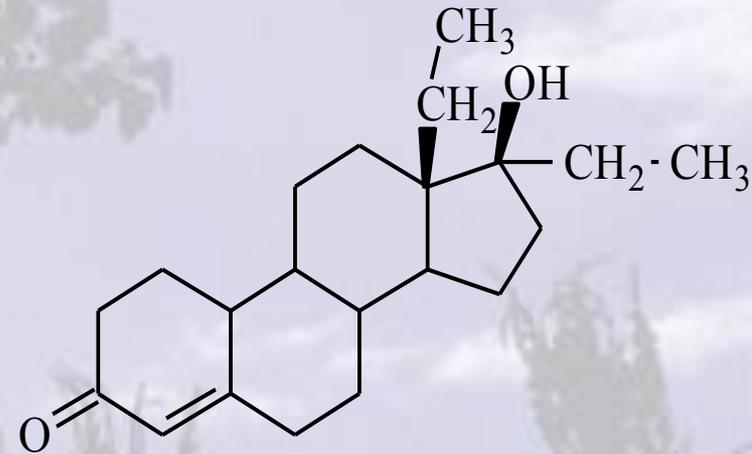
# Doping Challenges

- **Human Growth Hormone - approaches**
  - **Detect hGH Isoforms directly**
  - **Detect Biomarkers of hGH administration**
- **Designer Steroids**
- **Exogenous Testosterone**

# Designer Steroids



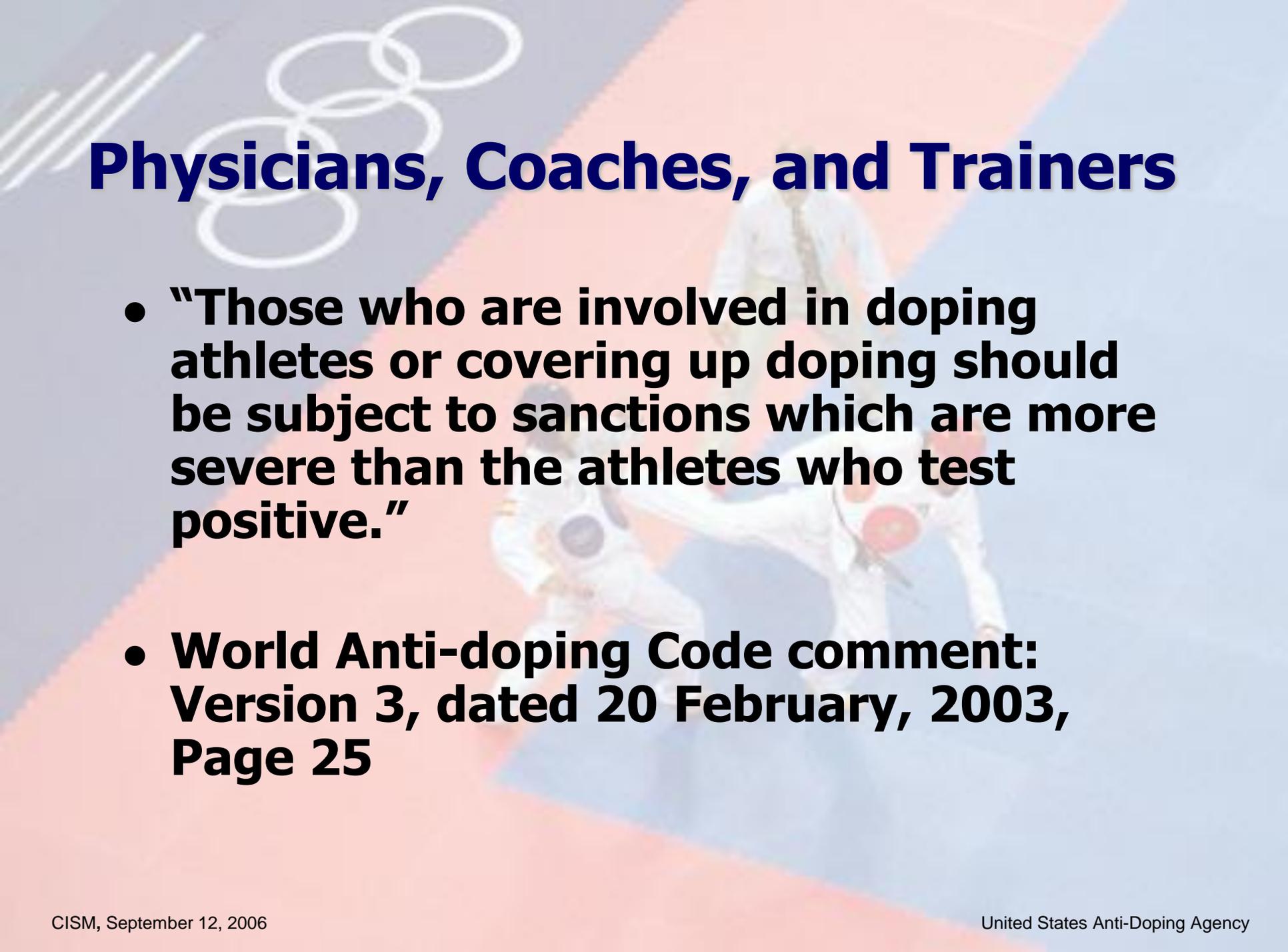
**Tetrahydrogestrinone**



**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.”**
- **World Anti-doping Code comment: Version 3, dated 20 February, 2003, Page 25**

# 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????**