

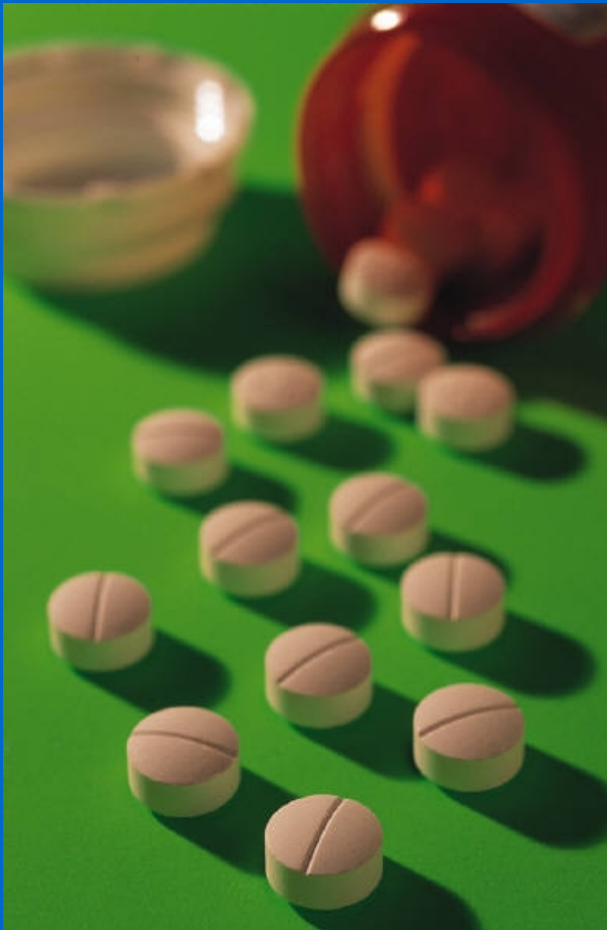


**A Conference on the Science and Policy  
of Performance Enhancing Products**

*Bethesda, Maryland. January 8 and 9, 2002*

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# *Performance-Enhancing Products ?*



## **Challenges Facing Sport Medicine Professionals & Sport Organizations**

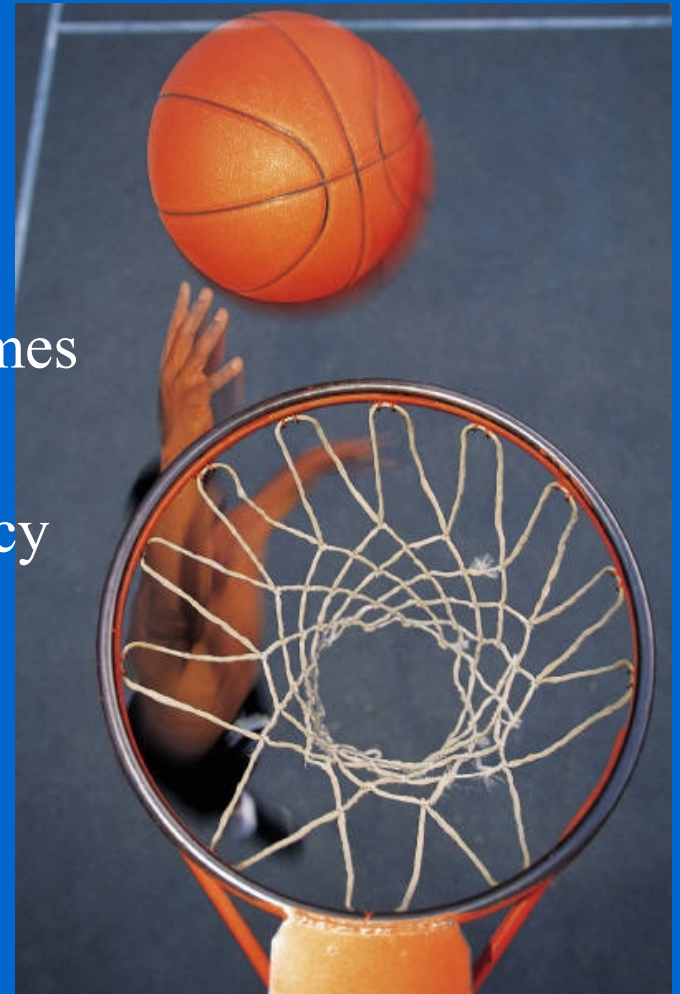
**Andrew Pipe, M.D.**

*Canadian Centre for Ethics in Sport*

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*...from the perspective of:*

- A Team Physician
- Chief Medical Officer -- Olympic Games
- Sport Policy Development
- Chair: National Doping Control Agency
- International Sport Federations
- Clinician and Researcher



A silhouette of a person running on a beach at sunset. The sun is low on the horizon, creating a warm orange and yellow glow. The runner's shadow is cast long on the wet sand. The sky is filled with soft, wispy clouds.

## Caring for the Athlete

*“The challenge is to provide care of the highest possible standard while being exquisitely sensitive to the aspirations, and unique environment, of the elite athlete.”*

“They are our patients first.....and athletes second!”



# *The Role of the Sport Physician*

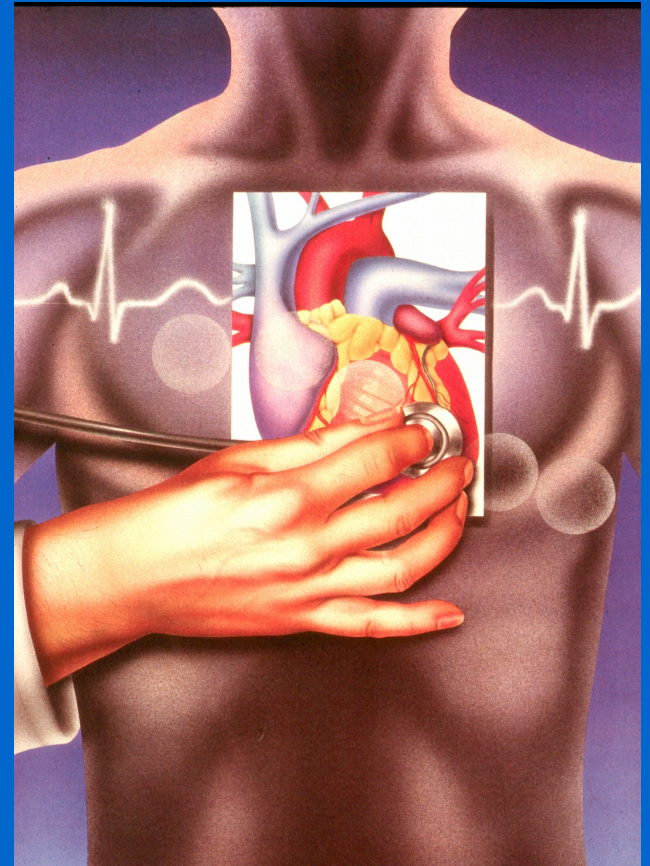
- Advisor and Confidante
- Advocate for the health of the athlete and the well-being of sport
- Responsibility to patient, sport and the community
- Supports the pursuit of excellence by fair and ethical means



# *The Sport Physician*

- Safeguarding Health
- Treating Illness and Injury
- Educating the athlete
- Optimizing performance

*Serving as the athlete's advocate in the era of Evidence Based Medicine!*



# *Vulnerability of Athletes*

- Exploitation
- Substandard or unconventional approaches to care
- ‘Commodification’
- “Faddish, gullible and susceptible to misinformation”

“For many nutrition is not a scientific discipline, but a religion”





# Supplements and the Athlete

- **Necessity**
  - *is there evidence of need?*
- **Effectiveness**
  - *is there evidence of benefit?*
- **Safety**
  - *is there potential for harm?*
- **“Dependency”**

# *Performance Enhancers*

- Correction of deficits (Fe etc.)
- Fluid replacement
- Carbohydrates
- Carbohydrate-electrolyte solutions
- $\text{HCO}_3$
- Caffeine
- Creatine



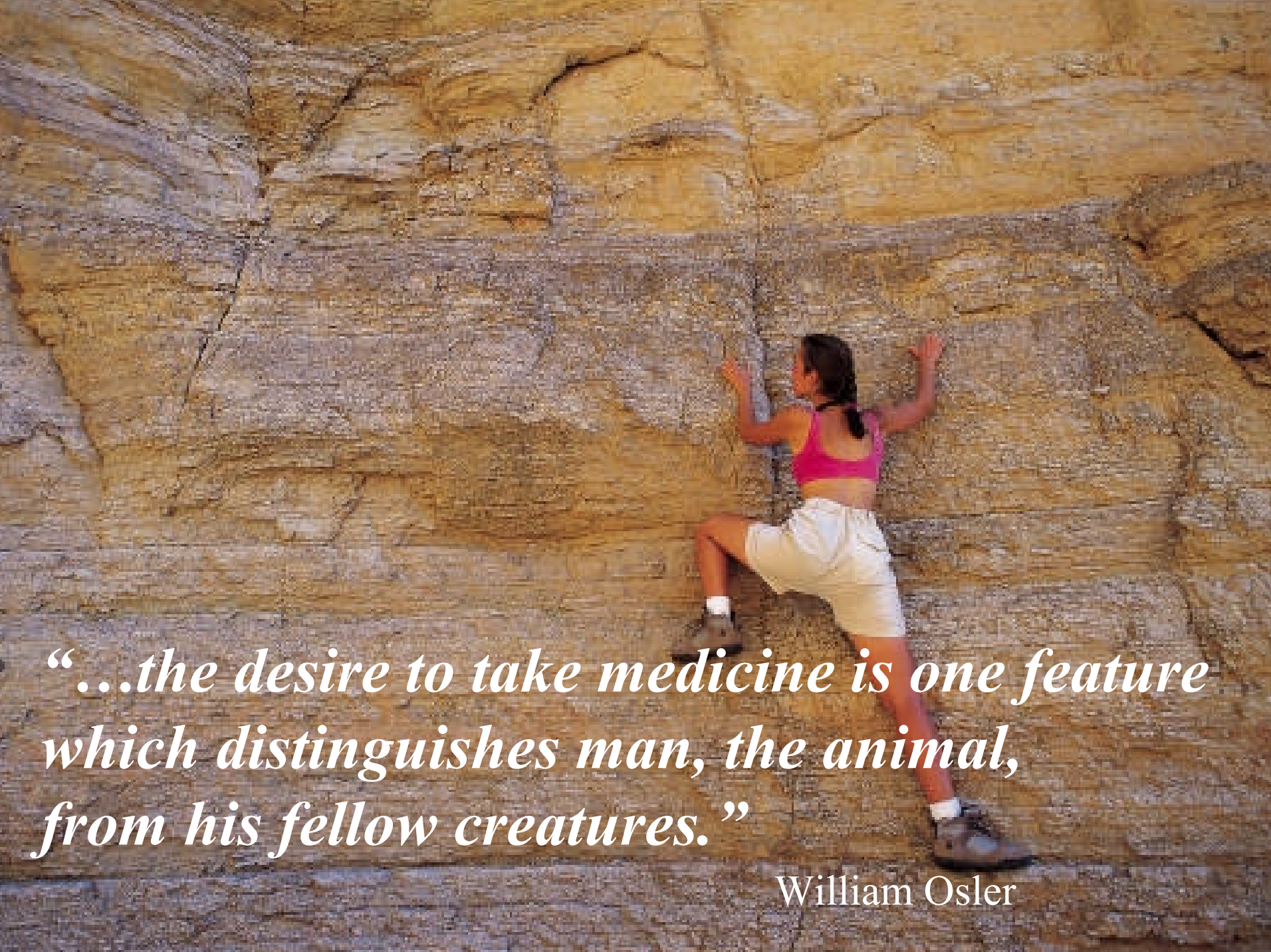
# Supplements at the Sydney Olympics, 2000

2758 Athletes tested

2,167 declared a medication or supplement

569 did not declare a medication or supplement

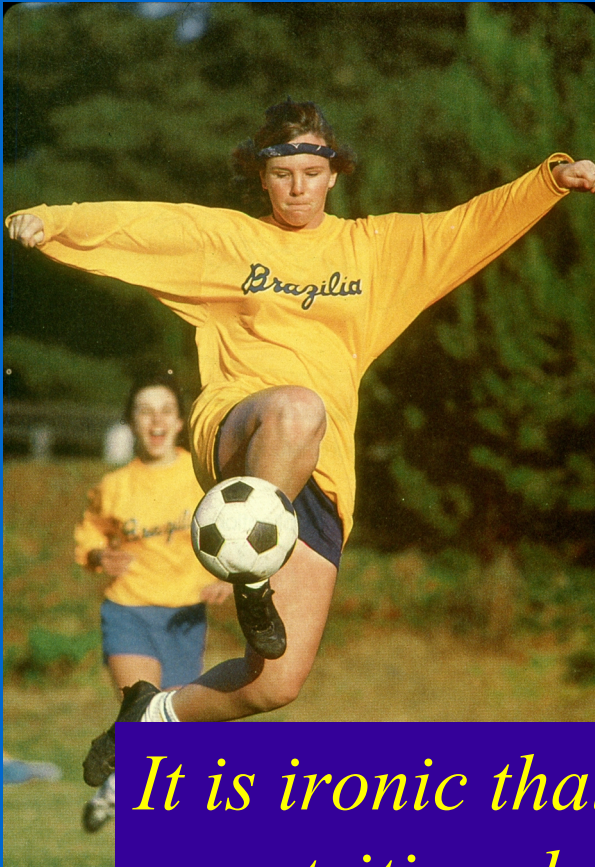
542 took more than 5 a day  
1 athlete took 26 !



*“...the desire to take medicine is one feature which distinguishes man, the animal, from his fellow creatures.”*

William Osler

# “Malnutrition” in Sport



## *Innapropriate*

- *Calories*
- *Fluids*
- *Calcium*
- *Iron ...*

*It is ironic that we spend so much time addressing nutritional minutiae when many athletes have nutritional issues of a more fundamental nature.*

## *Malnutrition in Sport*

- “Elite figure skaters are small, frequently undernourished and often poorly hydrated -- nutritional practices that may place them at risk for delayed physical development , menstrual irregularities, poor bone health, and suboptimal performance.”

*Coleman E, Sports Medicine Digest,2000;22:40.*

*Ziegler PJ, International Journal of Sports Nutrition,1999;9:345-60.*

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## The Dietary Supplement Health and Education Act. 1994



“As a result of the Dietary Supplement Health and Education Act passed by Congress in 1994, products marketed as dietary supplements are not reviewed by the FDA for effectiveness or safety.”

*Medical Letter, 37:112, Nov. 24, 1995.*

# *Nutritional Supplements*



- Essentially unregulated in the USA since 1994
- Aggressively marketed to athletes
- Competency of some manufacturers in doubt
- May contain banned substances

*“A triumph of marketing over science”*



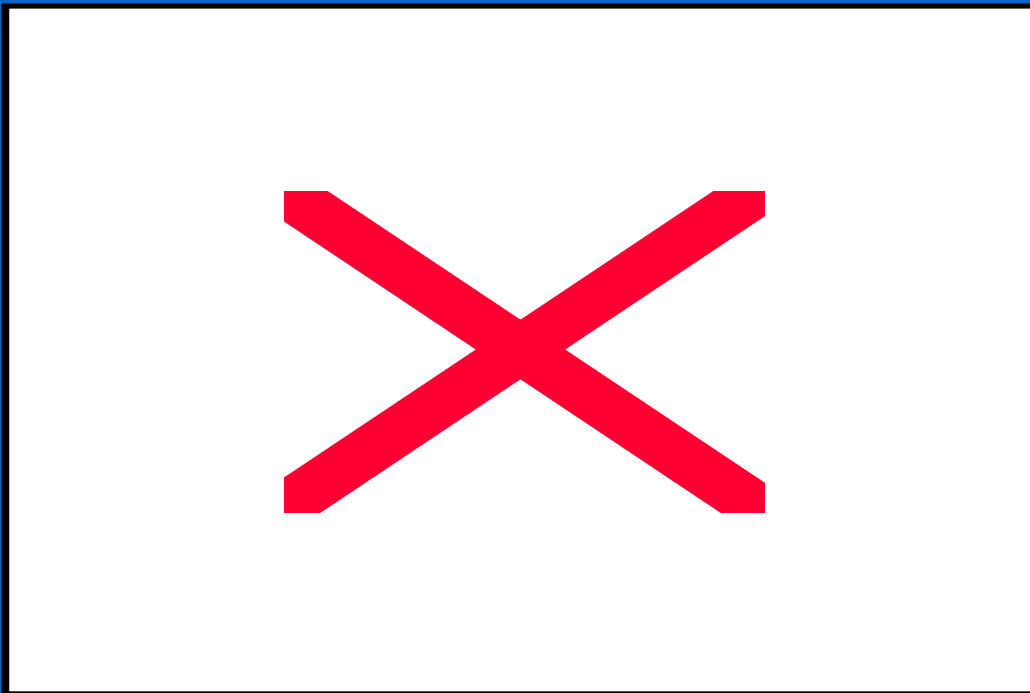
# *Supplements and Positive Drug Tests*



- Unclear labeling
- Absent labeling
- Incorrect labeling
- Contamination
- Variability of contents

# *Nutritional Supplements*

## The “Nandrolone Story”:



PRECURSORS:

*Androstenedione*

*Androstenediol*

*Nandrolone*



**Norandrosterone**

{19-androstenedione, 19-androstenediol and 19-nortestosterone} —————> 19-norandrosterone}

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## *Minimizing the risk*

“In light of supplement availability, poor quality control, and mislabeling of products, the only sure way athletes can avoid testing positive is to shun all dietary supplements.”



Coleman, E. *Sports Medicine Digest*, 2001;23:117


# Nutritional Supplements



Sugg. Retail/Prix de détail **\$4.50**

**NATURE'S NUTRITION™**

**FORMULA ONE**  
**FORMULE UN**  
**CANADA**

**100% All Natural Supplement • (12 Capsules)**  
**Supplément 100% Naturel**

<p><b>Each Capsule Provides</b> <b>Chaque capsule contient:</b> Yerba Maté, Ginger Root, Parsley, Siberian Ginseng, Abutilon, Passion Flower, Licorice, Bladderwrack. / Yerba maté, racine de gingembre, persil, ginseng sibérien, abutilon, fleur de la passion, réglisse, algue. <b>Note:</b> This product contains no animal products, preservatives or artificial colours. Suitable for vegetarians. Ce produit ne contient aucun extrait d'animal, aucun agent conservateur ou colorant artificiel. Convient aux végétariens.</p>	<p><b>Suggested Usage/Mode d'emploi suggéré:</b> Take 1 or 2 capsules daily. Prendre un ou deux capsules par jour.</p> <p><b>Caution:</b> Keep tightly closed and in a dry place. Avoid excessive heat and humidity.</p> <p><b>Mise en garde:</b> Fermer hermétiquement et garder dans un endroit sec et à l'épreuve de la chaleur.</p> <p>Marketed exclusively and imported by/ Vendu et importé exclusivement par: Alliance Canada Calgary, Alberta T2H 2K1</p> 
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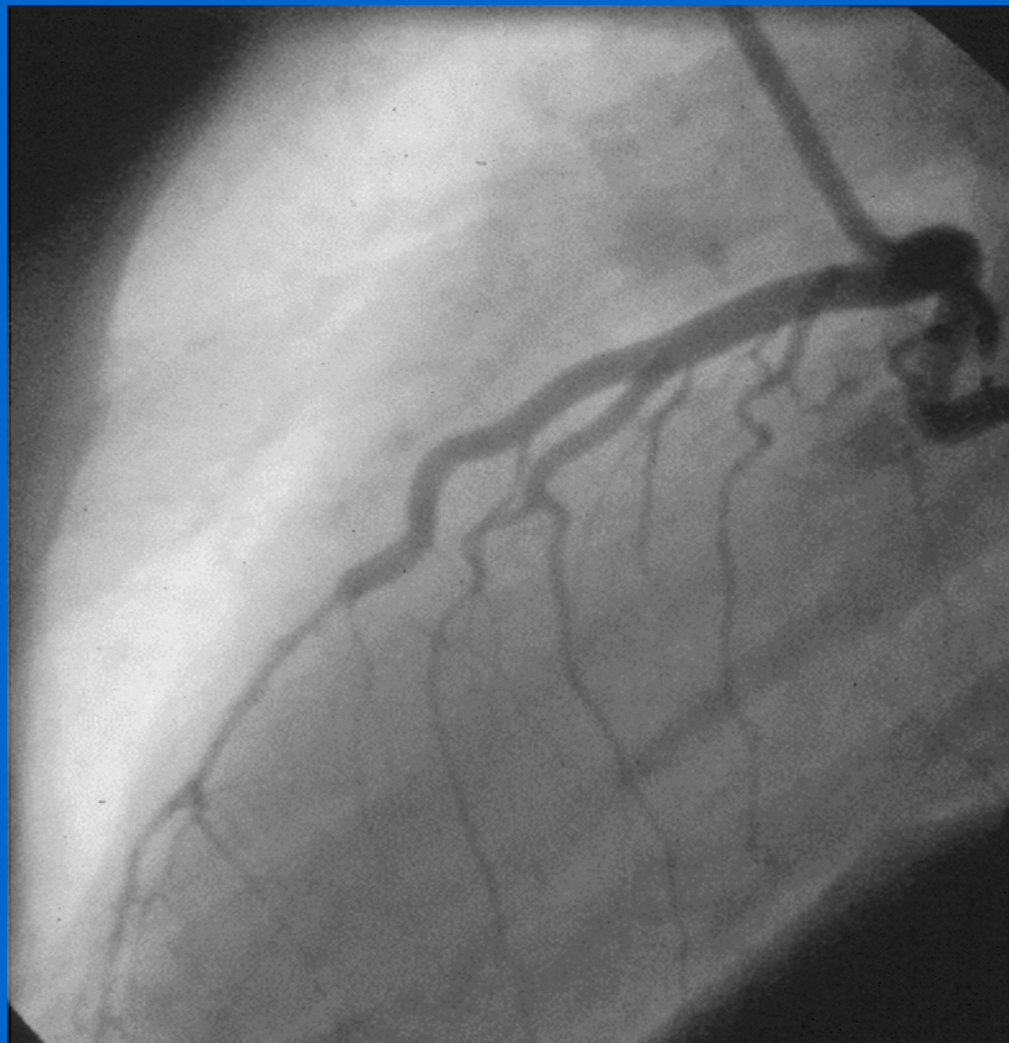
- 1994 Commonwealth Games
- Weightlifter -- Medallist
- 3 Prohibited Drugs
  - *All Sympathomimetics*
- Athlete disqualified
- ***Product found to contain all 3 banned drugs !***
- Athlete re-instated

*Other considerations...*



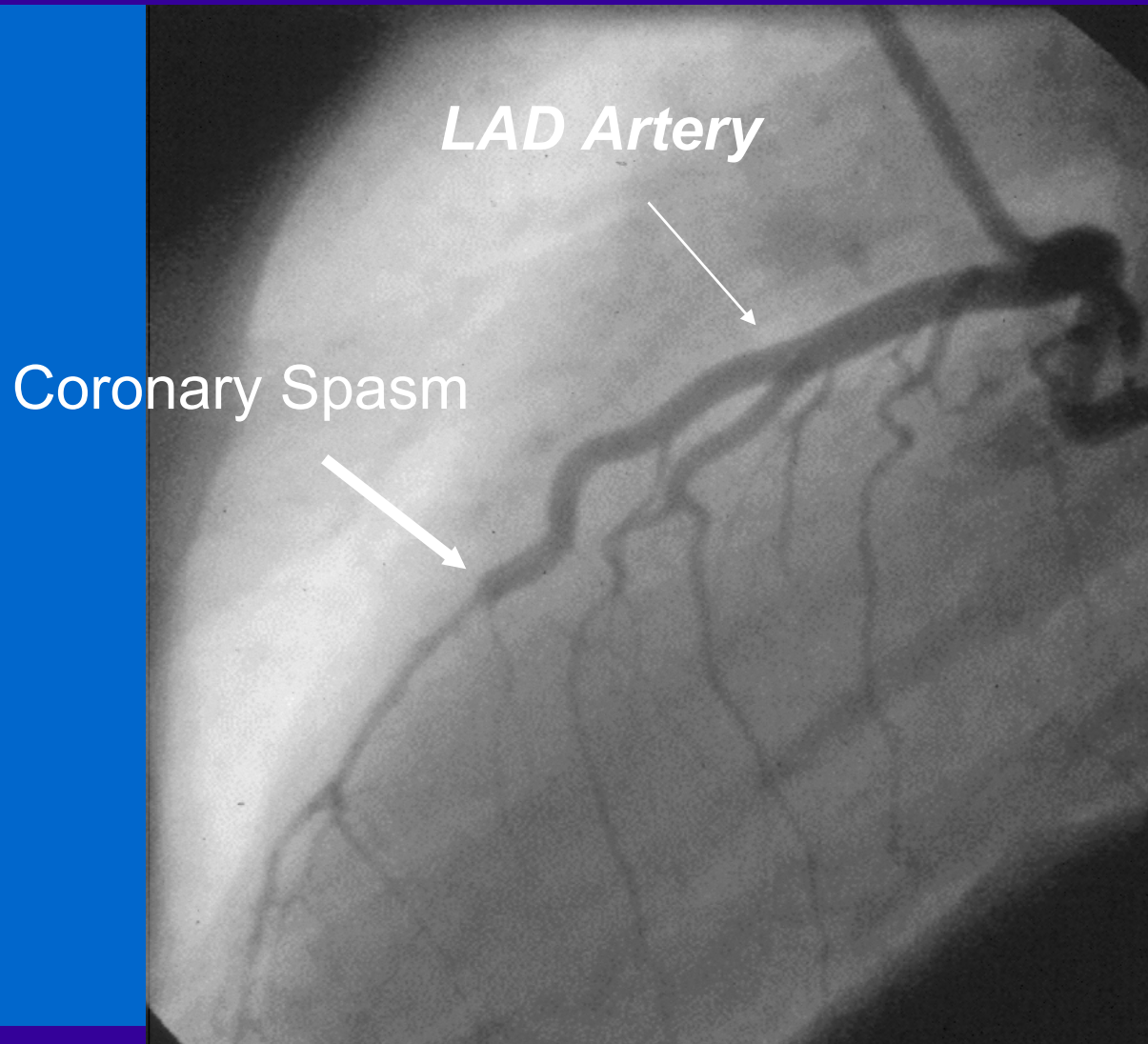
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# *Supplements and Health*



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# *“Ephedra” induced Coronary Spasm*



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## Adverse effects of supplements containing *Ephedra*.

A review of 140 reported adverse reactions:

10 Deaths

13 permanent disability

26% of cases resulted in death or  
permanent disability

*“rate of reporting may be less than 15%”*

Haller CA *NEJM* 2000;343(25):1838-8.

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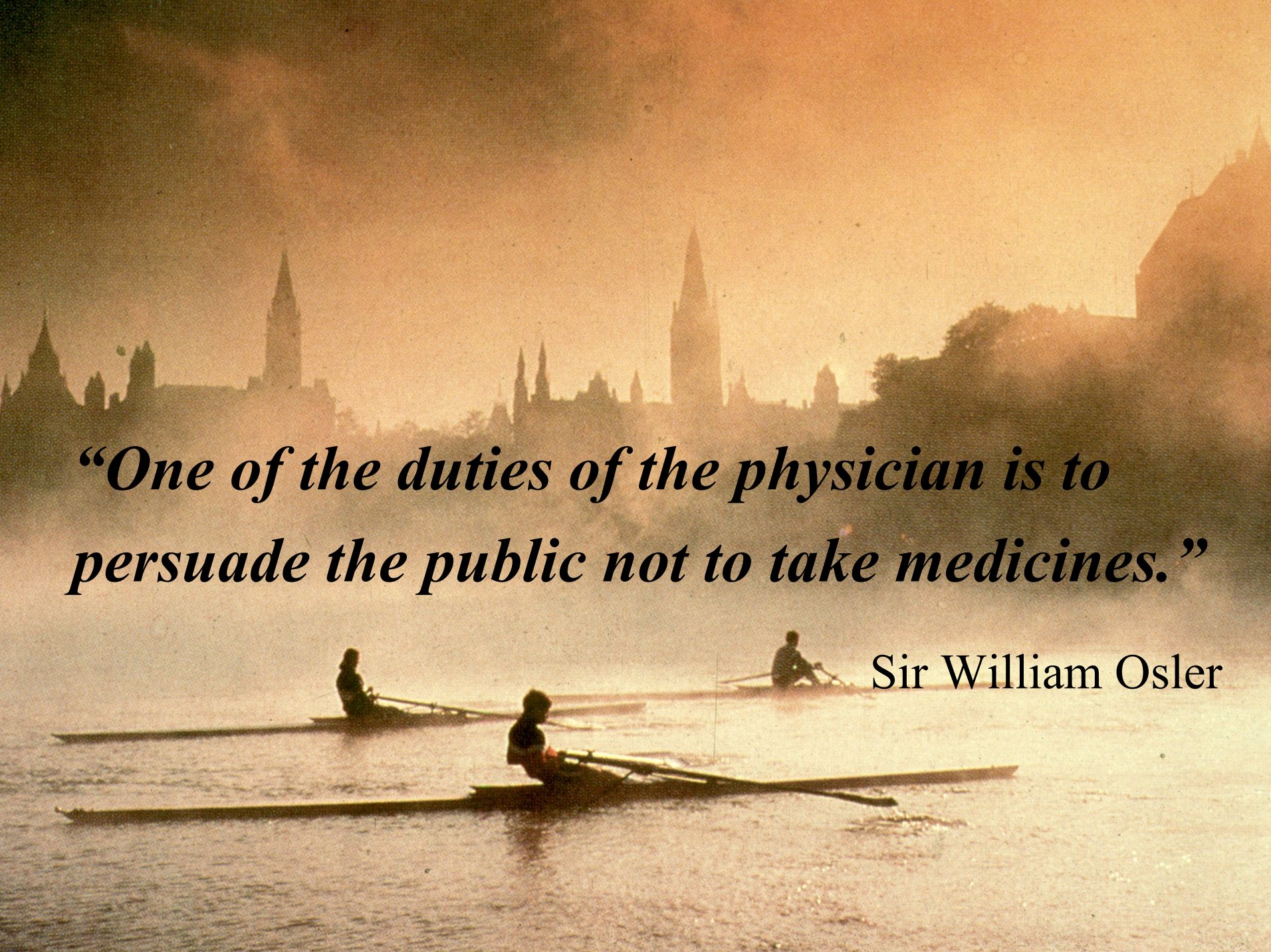


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## Adverse effects of supplements containing *Ephedra*.

“The risks of taking *ephedra* alkaloids as a dietary supplement...are difficult to justify because the alkaloids have no demonstrated benefit. People who take these products to increase their exercise capacity...place themselves at risk without a substantial likelihood of benefit.”

Haller CA *NEJM* 2000;343(25):1833-8.

A sepia-toned photograph of a river scene. In the foreground, three rowers are visible in their boats, moving across the water. The background features a city skyline with several prominent spires and buildings, likely a European city like Cambridge or Oxford. The overall atmosphere is calm and historical.

*“One of the duties of the physician is to persuade the public not to take medicines.”*

Sir William Osler

## *Responding to the problem:*

- Specific mailings to all athletes regarding potential problems associated with supplement use and drug testing
- Meetings with all National Teams at training sites
- Registered letters to the Presidents of all National Sport Organizations regarding supplement use
- Personal interview, medication and supplement review, and documentation of the same with every Olympic Team member



“I am aware of the necessity to verify the acceptability...of any medication, nutritional supplement, vitamin preparation or any such related product, preparation or compound...I am further aware that the use of nutritional supplements may pose significant risk for athletes inasmuch that such products may contain banned substances...”

*Extract of Athlete Declaration, Canadian Men's Basketball Team*

## *Other responses*

- Refusal to become involved in sponsorship arrangements with supplement manufacturers
- Contractual considerations re provision of dietary and nutritional advice by team staff
- Retreat from provision or recommendation of supplement products by sport science staff
- Specific warnings in handbooks re: problems associated with supplement use by athletes
- Development of nutritional support programmes delivered by professional dietitians

# Disturbing Trends

Dear Sir or Madame

I am a sprinter who currently lives in [redacted] and I would very much like to have a copy of your booklet which outlines all the permissible and non-permissible drugs. Also, I would greatly appreciate it if you could possibly recommend two or three PERMISSABLE DRUGS which would be beneficial to sprinters [redacted]. Your assistance will be greatly appreciated in this matter. Please send the information to the above address as soon as possible.

Thank you.

# *The International perspective...*



- “Surprise, Dismay and Incredulity”
- US Supplement industry and lax regulatory environment seen as producing a problem for sport organizations worldwide
- Availability of supplements by mail and Internet seen as an issue
- Hormonal precursors seen as a particular anomaly

# *Sport Organizations*



- Spate of Positive drug tests
- Tarnished view of sport
- Requests for review of various products
- Warnings re: the problems posed by supplements
- Liability ?
- Growing sense of frustration with supplement industry



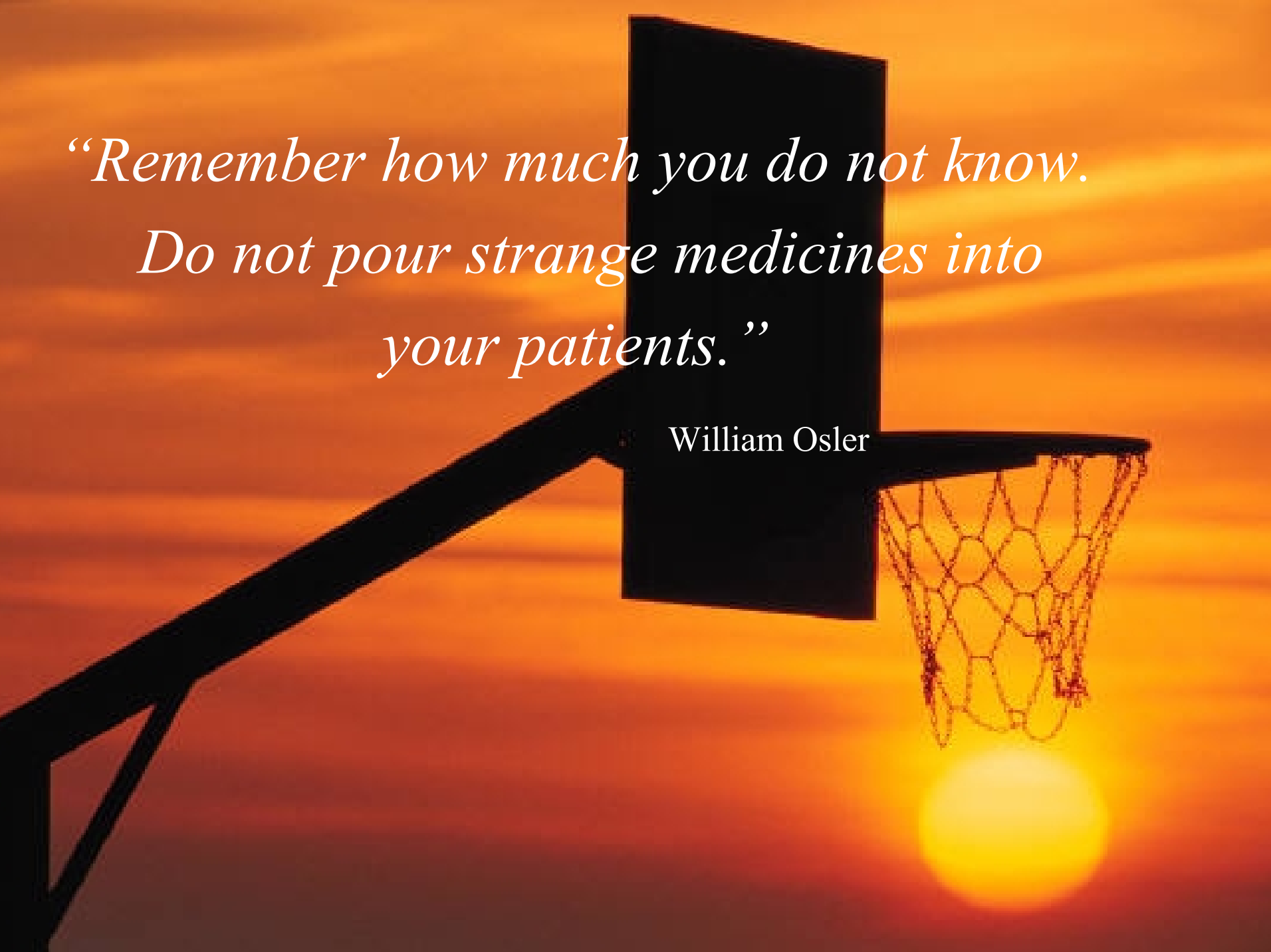


# *Responding to the Challenges*



*“Success consists of doing ordinary things ...  
... extraordinarily well.”*



A silhouette of a basketball hoop and net is positioned against a vibrant sunset background. The sun is a bright, glowing orb in the lower right corner, casting a warm orange and yellow light across the sky. The basketball hoop's backboard and rim are visible, with the net hanging down. The overall scene is peaceful and contemplative.

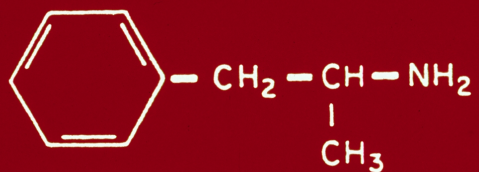
*“Remember how much you do not know.  
Do not pour strange medicines into  
your patients.”*

William Osler

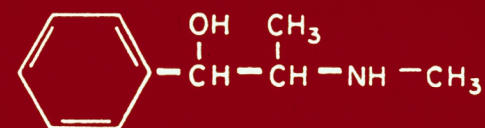
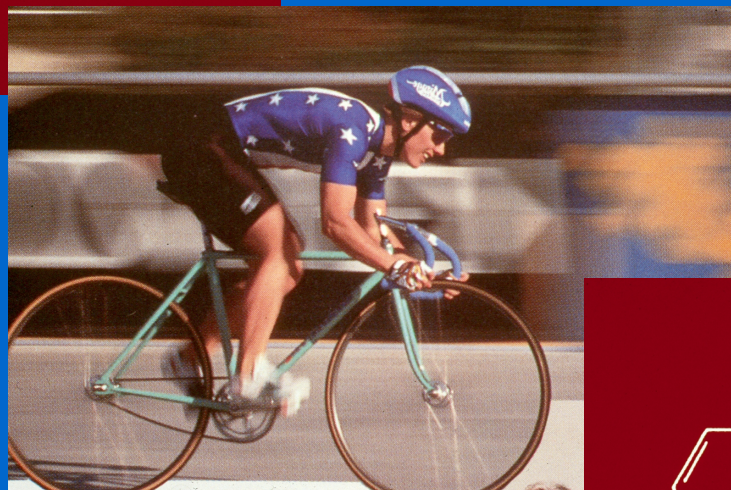
*Where to start?*

The Duty of Care.





AMPHETAMINE



EPHEDRINE

## *Sympathomimetics & Sport*




# *Guidance for Athletes*





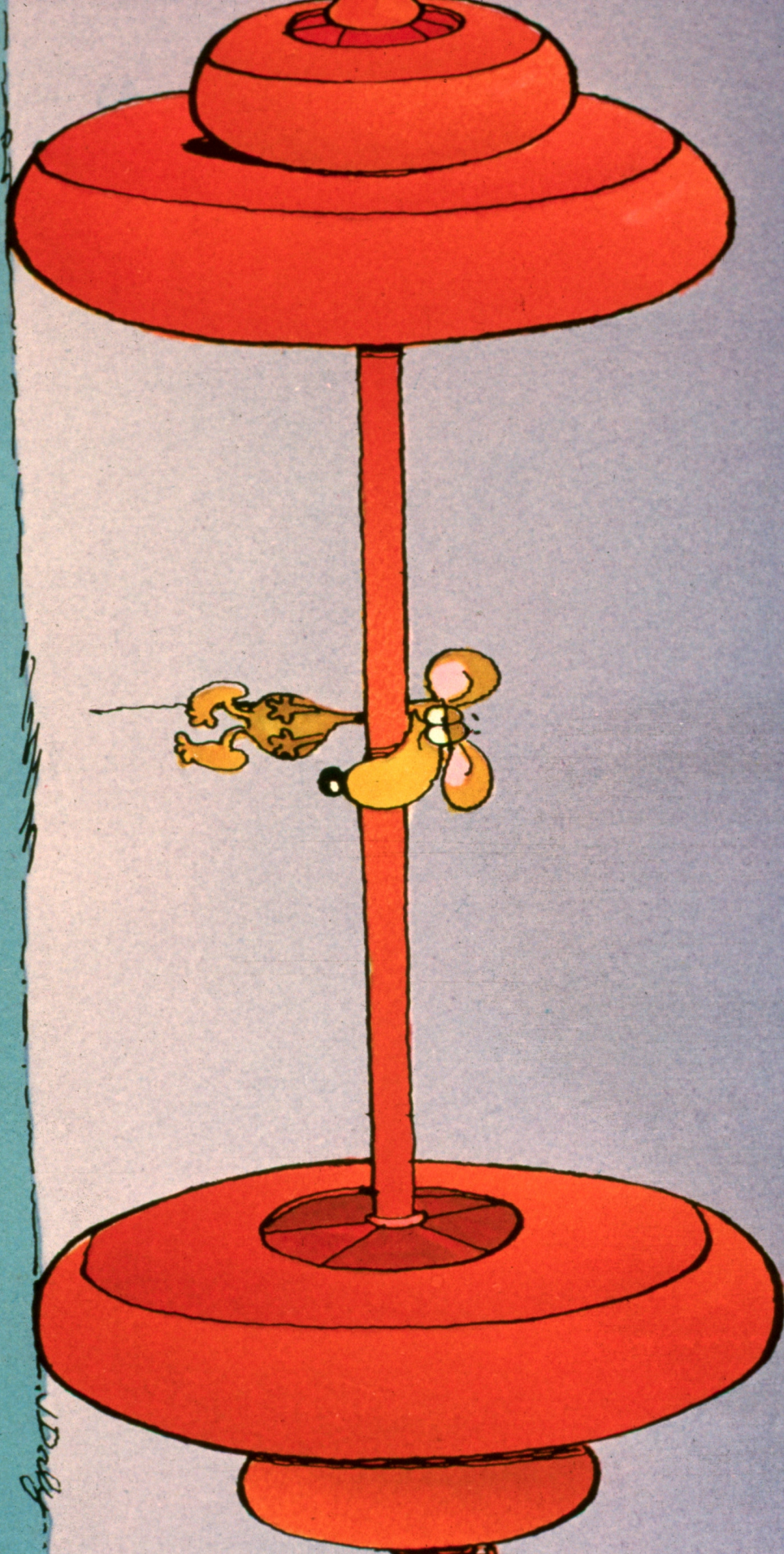


# Drug Testing Programmes

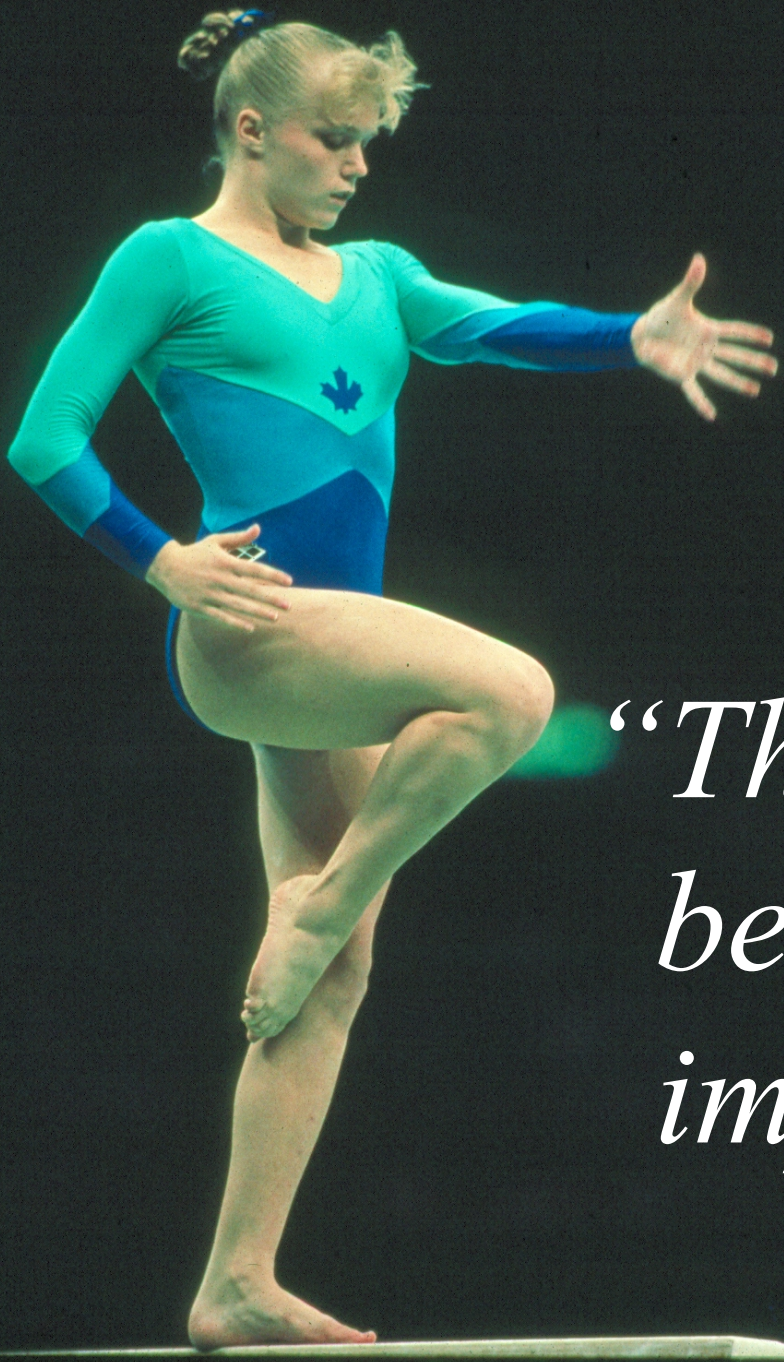
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*“The challenge is to provide care of the highest possible standard while being exquisitely sensitive to the aspirations, and unique environment, of the elite athlete.”*





W. D. P. ...



*“The athletes were  
beaten, starved and  
imprisoned”*



*Political Developments*