

# World-Record Progress in Track Events

Potentially Novel Means to Detect Doping

Danny Bubb

NY Data Science Academy

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Navigation icons: back, forward, search, etc.

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## Why care about doping?

- modern Olympiad is worth saving



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## Why care about doping?

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- doping is dangerous and causes health problems



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## Why care about doping?

- modern Olympiad is worth saving
- doping is dangerous and causes health problems
- competition is vital to human endeavor



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## Types of Doping

- Steroids



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- Steroids
  - reduce inflammation - cortico



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## Types of Doping

- Steroids
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- Blood doping



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- Steroids
  - reduce inflammation - cortico
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- Blood doping
  - transfusions - both autologous and homologous



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  - synthetic oxygen carriers and hormones



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## Types of Doping

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- Insulin - increases glucose storage and bio-availability



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  - synthetic oxygen carriers and hormones
- Insulin - increases glucose storage and bio-availability
- hGH - oh to be young again!!!



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## Track Events and Energy Systems

- 100m - purely anaerobic



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## Track Events and Energy Systems

- 100m - purely anaerobic
- 1500m - anywhere from 80/20 → 84/16



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## Track Events and Energy Systems

- 100m - purely anaerobic
- 1500m - anywhere from 80/20 → 84/16
- 10000m -  $\frac{95}{5}$



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## Track Events and Energy Systems

- 100m - purely anaerobic
- 1500m - anywhere from 80/20 → 84/16
- 10000m -  $\frac{95}{5}$

Transition between anaerobic and aerobic respiration occurs at about 15 – 30s



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## Track Events and Energy Systems

- Be either stupid or unfortunate and test positive



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## Track Events and Energy Systems

- Be either stupid or unfortunate and test positive
- Get caught with drugs - i.e. Festina affair



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## Track Events and Energy Systems

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- Biological passport



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## Track Events and Energy Systems

- Be either stupid or unfortunate and test positive
- Get caught with drugs - i.e. Festina affair
- Biological passport
  - establishes permissible limits and tracks athlete's blood values and tests over time to detect malfeasance



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