

World-Record Progress in Track Events

Potentially Novel Means to Detect Doping

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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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Notes

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Types of Doping

- Steroids
 - reduce inflammation - cortico
 - build muscle - anabolic
- Blood doping
 - transfusions - both autologous and homologous
 - 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
- 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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How to Get Caught

- 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
- non-analytical positive -> Data Science??!!!!



Notes

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