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Will Disabled Athletes Exceed the Limits of Human Performance?


UNIV 197K-01
The Limits of Human Performance
Brian R. Umberger, Ph.D.

Kinesiology

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The Paralympics

- Elite athletes with a physical disability can compete in the Paralympics in a range of sports
 - track & field, cycling, archery, fencing, swimming, etc
- Disability categories
 - amputee, cerebral palsy, wheelchair, visually impaired, les autres (all others)






The Limits of Human Performance 2

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The Paralympics

- Paralympics exists, in part, because it may not be "fair" to have all athletes compete together
- It is generally assumed that the disabled athletes are at the disadvantage
- This is clearly not always true
 - e.g., wheelchair marathoners
- Some other disabled athletes are currently approaching the ability of able-bodied athletes
 - case study: Oscar Pistorius




The Limits of Human Performance 3

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Oscar Pistorius

- South African sprinter
- Both legs amputated below knee at age 1, due to congenital deformity
- Current standings
 - double amputee world record holder in 100, 200, & 400 m sprints
 - has medaled at able-bodied events
 - only 5-15% off the able-bodied world records for 100, 200, & 400 m



The Limits of Human Performance 4

Hardware

- Pistorius uses the Cheetah prosthesis by Ossur
- High-end, carbon fiber prosthesis, specifically made for sprinting (> \$10k each)
- Designed to store and return energy to the sprinter with each step



Controversy

- Pistorius sought to be eligible to compete in the 2008 summer Olympic games in Beijing
- In Jan 2008, the IAAF banned him from competing in the games; said his prostheses violated the rule that bars the use of:

“any technical device that incorporates springs, wheels or any other element that provides a user with an advantage over another athlete not using such a device”
- Decision was appealed to the CAS

Controversy

- In May 2008, the CAS overturned the ban, stating that the IAAF had not demonstrated any advantage over able-bodied athletes
 - In July 2008, Pistorius finished 3rd in an able-bodied event with a personal best time in the 400 m (46.3 s), but this was not fast enough to qualify (needed 45.6 s)
- In both cases, the decisions were based partly on studies of the biomechanics and physiology of his running
- While this issue has died down since Beijing, it will not go away

Questions

- Should there be separate events (Paralympics, Special Olympics) for athletes with disabilities?
- Should any disabled athlete be allowed to compete in able-bodied events, if they want to?
- Should there be limits on the use of assistive devices by (disabled?) athletes
 - If so, who sets the limits, and by what standards?
- Will able-bodied athlete ever voluntarily have an amputation, etc, if they can gain an advantage?

Up next ...

- Factors that limit human running speed