

How do we deal with Gene doping in Horse Racing Industry?



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- ✓ What can Racing Authorities do to counteract the threat of gene doping?

What is gene doping?



In general

A term that is used when referring to people altering their body by changing their cells and genes, genetic elements to their advantage.

(https://en.wikipedia.org/wiki/Talk%3AGene_doping)

World Anti-Doping Agency

The **non-therapeutic** use of genes, genetic elements and / or cells that have the capacity to enhance **athletic performance**.

(World Anti-Doping Code. The 2004 Prohibited List: International Standard. Montreal: World Anti-Doping Agency, 2004)

Definition of gene doping

Horse Racing Industry

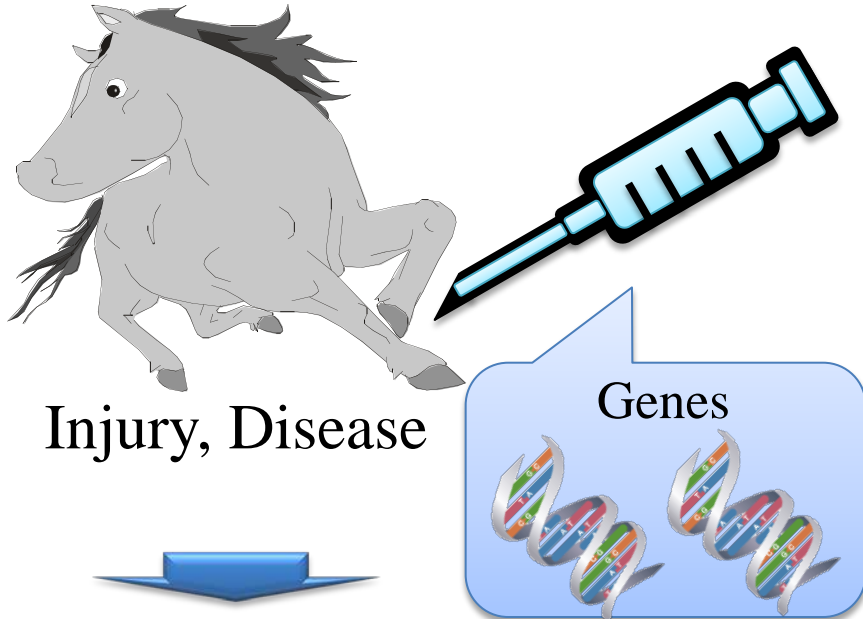
There is no clear definition.



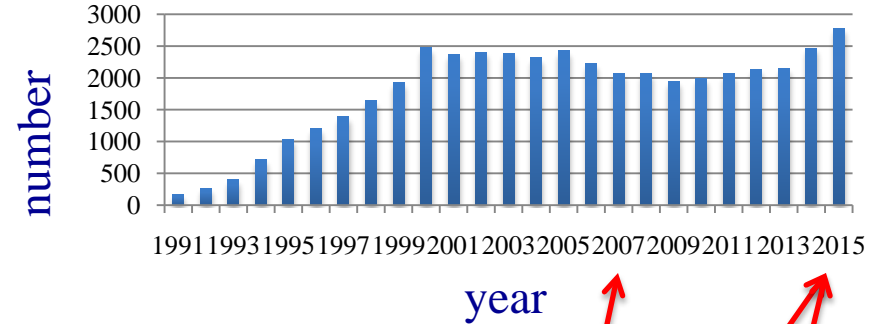
Abuse/misuse of gene therapy

What is Gene Therapy?

- ✓ Introduction of exogenous genes



Research articles for gene therapy

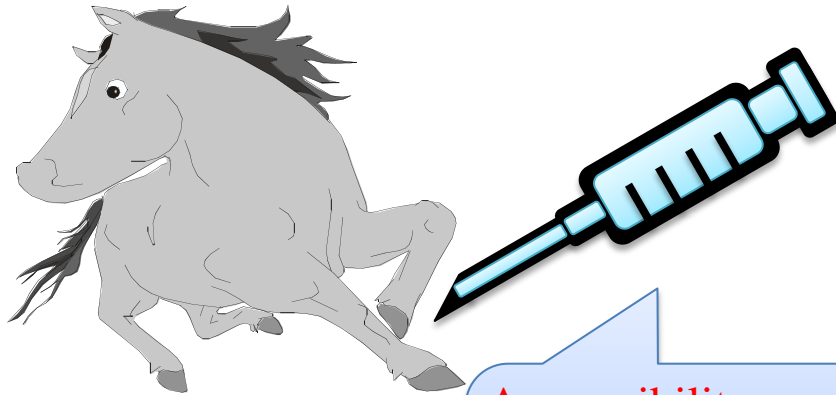


In horses,

- fracture
- laminitis
- osteoarthritis

Example of abuse/misuse of Gene Therapy

- ✓ Introduction of exogenous genes



~~Injury, Disease~~
Healthy horse



Gene Doping

As possibility,
Genes that used for
treatment of
Muscular Dystrophy

Gene doping may lead to these animals,
although this is not an actual case.



Ref: Antonio Regalado (2015) MIT Technology Review
(<http://www.technologyreview.com/news/542616/>)

What can Racing Authorities do to counteract the threat of gene doping?



- ✓ Clarify definition of gene doping in racehorses
Abuse/misuse of gene therapy
- ✓ Deterrent actions against gene doping
Effective utilization of OOCT samples
Keeping OOCT samples
- ✓ Collaboration with professionals
Not only Chemists but also Geneticists

Thank you for your attention!

I am clean!

