

# New discovery leaves blood-doping athletes scratching their heads

20 September 2007

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A stunning discovery by German scientists may make blood doping and the treatment of severe anemia as easy as washing your hair. In the October print issue of *The FASEB Journal*, researchers show that the estimated 100,000 hair follicles on each person's head have the potential to become erythropoietin (EPO) factories. EPO, the hormone primarily responsible for the creation of red blood cells, is used illegally to enhance athletic performance and is used legally to treat severe anemia associated with kidney failure and chemotherapy.

"The ultimate hope is that we'll be able to up the production of natural EPO in our hair follicles whenever we need it, safely and at a low cost," said Ralf Paus, senior author of the study. "Our study also highlights that ancient hormones are engaged in many more activities than conventional medical wisdom has assigned to them."

Normally, EPO is created and released by the kidneys. When the kidneys fail, or when someone undergoes chemotherapy, this process is disrupted and severe anemia occurs. Today, most people are treated using synthetic EPO to bring red blood cells back to normal levels, but synthetic versions of this hormone are relatively expensive.

Blood-doping athletes use synthetic EPO to help their bodies bring red blood cells to above-normal levels. This increased concentration of red blood cells allows the blood to deliver more oxygen to muscles than normal, significantly improving endurance and performance. The major danger in boosting the number of red blood cells above normal is that as the blood thickens with red blood cells, the possibility of heart attack increases.

"This study opens doors to an entirely new approach for treating EPO-related anemia," said Gerald Weissmann, MD, Editor-in-Chief of *The FASEB Journal*. "The study also is important because it suggests that there is still much to learn

about 'well known' processes in the body."

Source: Federation of American Societies for Experimental Biology

APA citation: New discovery leaves blood-doping athletes scratching their heads (2007, September 20) retrieved 21 May 2021 from <https://medicalxpress.com/news/2007-09-discovery-blood-doping-athletes.html>

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