

AS THE SCIENCE GETS BETTER, CATCHING THE CHEATERS BECOMES EASIER

Part V of A PAINFUL TRUTH: A six-part series on medication and the reform movement in U.S. racing



By Bill Finley

The newly formed United States Anti-Doping Agency (USADA) held its first symposium in 2000 and asked questions that needed to be asked: What performance-enhancing drugs are human athletes using with impunity? What do they have that we can't catch? The answer at what has now become an annual get-together on anti-doping science was alarming. The list included EPO, Human Growth Hormone, blood transfusions and designer steroids.

That the drugs were illegal and dangerous didn't stop a lot of athletes. They cared more about how they could make them run faster, jump higher and power their bicycles and they had their hands on plenty of drugs that existing drug testing methods could not detect.

"What you had was this win-at-all-costs culture and an incredible amount of money being put into sport, particularly with those at the top who win the most," said USADA CEO Travis Tygart. "There were just so many forces out there supporting the win-at-all-costs way of doing things."

The sobering reality was that those who were willing to pump their bodies full of chemicals in order to help them win were beating the system. It was hard to get caught.

How much has that changed? The answer: some.

Marion Jones and Lance Armstrong were caught and exposed and no one is hitting 70 home runs a year any more in baseball. But the game of cops



Lance Armstrong at the Tour de France in Monaco, 2009, 123rf.com

For the most part, the cheaters have always been a step or two ahead of the authorities, but the gap may be about to close due to a new paradigm.

and robbers goes on, with the cheaters looking for drugs that will both improve performance and slip through the cracks of detection and the regulators, sports officials and scientists trying to come up with new techniques to ensure our playing fields are level.

For the most part, the cheaters have always been a step or two ahead of the authorities, but

the gap may be about to close due to a new paradigm. It's no longer about finding a drug in a the blood or urine of an equine or human athlete but identifying changes in the body caused by the drug.

In the field of human athletics, scientists are more and more using biological passports to catch cheaters. The biological passport shows what an individual's biochemistry is like when it is unaltered by drugs. When the athlete takes a performance-enhancing drug, changes occur in the body, and the biological passport should show this. You no longer need to detect the presence of a drug in someone's system if you can prove that there was a change in the body and that the change only could have occurred with drugs.

Because so many drugs are undetectable or pass through

the system very quickly, the passports represent a significant step forward. They are already being used in cycling, where numerous cheats have been caught by the method, and in track and field. The International Tennis Federation is in the process of implementing its own biological passport program.

To use biological passports in racing, a sport with tens of thousands of competitors, may not be practical. But some in the equine field are going beyond the typical drug tests. In Pennsylvania, Dr. Lawrence Soma and Cornelius Uboh are at the forefront of a movement to detect drugs by finding changes in the horse's biological makeup.

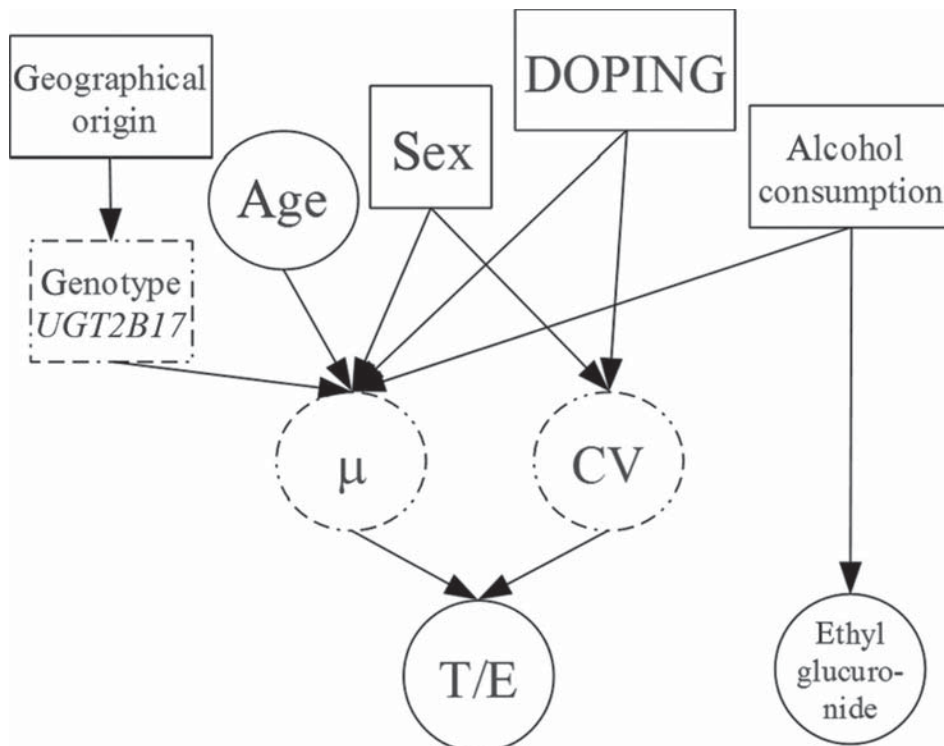
"We are looking at the effect of the drug and not necessarily the drug itself," said Soma, the racing commission's equine research director at the New Bolton Center of the University

of Pennsylvania School of Veterinary Medicine.

Soma works hand in hand with Dr. Uboh, the director of the Pennsylvania Equine Toxicology and Research Laboratory of West Chester, Pa., which is a joint venture combining the expertise of University of Pennsylvania personnel and those who work for the state racing commission.

Uboh and Soma set about to detect when trainers were using shockwave therapy, which has an analgesic effect on horses and is used to treat such problems as fractures and ligament issues. The method is illegal in Pennsylvania when given within seven days of a race and it can be dangerous if the pain-killing effect is still taking place when the horse is running. But since shockwave treatments do not involve drugs, obviously, drug testing is useless when it comes to detection.

"Shockwave therapy, that is not a drug and you couldn't go and look for it with traditional drug testing methods," Uboh said. "But you can find changes in the proteins. So that's the approach. There are different types of treatments that are given to horses that we may never be able to detect that create changes in the proteins, in the cytokines (proteins that are released by tissue cells in response to trauma, disease, etc.) so those



Dr. Lawrence Soma, www.vet.upenn.edu/



Dr. Cornelius E. Uboh
www.agriculture.state.pa.us/

The Athlete Biological Passport, www.clinchem.org

are the things we are looking for. Changes...are they going up or are they going down? Assume that this is the natural level for the horse, when you put something into the horse you affect that natural level. You either push it up or you push it down.”

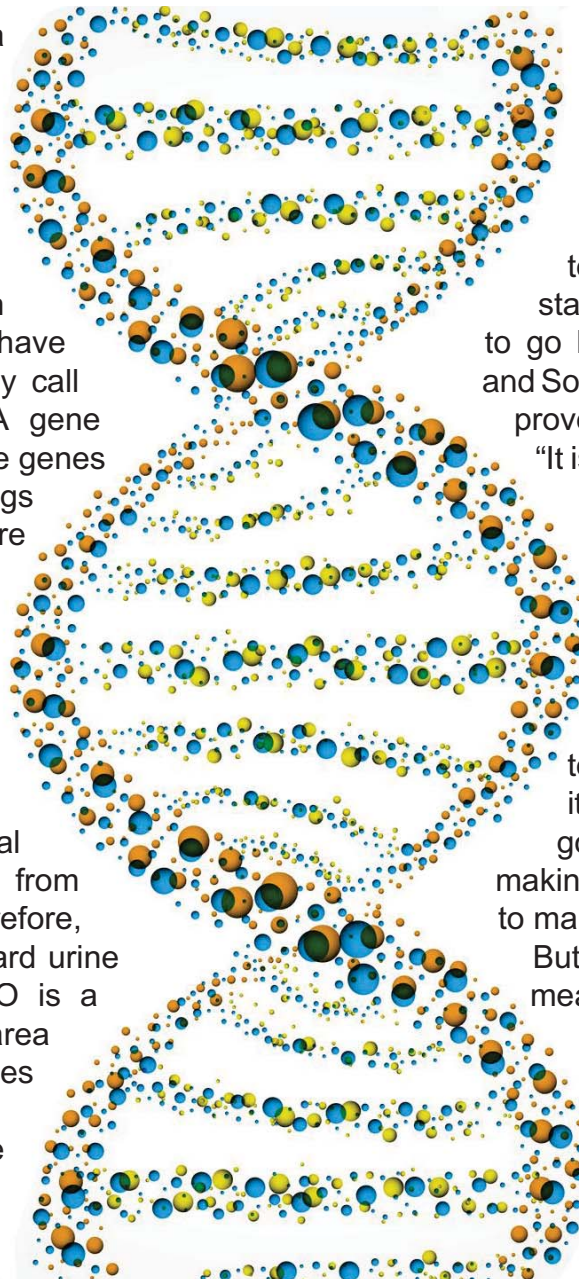
This new way of catching cheaters—not by finding the drugs but finding changes in the physiology of the horse created by the drugs—can be done in a number of ways, starting with methods involving DNA.

Uboh and Soma did not have the luxury of having biological passports for individual horses in Pennsylvania, but they would have the next best thing—what they call an “equine chip.” The DNA gene chip contains thousands of the genes for the horse in general. Drugs and shockwave therapy are two examples of things that can create changes in the DNA of the horse. Scientists also look for changes in proteins and cytokines.

There are certain drugs that could create a performance-enhancing effect for several days but quickly disappear from the animal’s system and, therefore, cannot be detected by standard urine and plasma drug tests. EPO is a prime example. This is the area where the new methodologies can be particularly effective.

“These methods will be applied to drugs which are rapidly distributed into body tissues and cannot

This new way of catching cheaters—not by finding the drugs but finding changes in the physiology of the horse created by the drugs—can be done in a number of ways, starting with methods involving DNA.



be detected in blood or urine, but have already initiated the cascade of events to make them effective and able to influence performance,” Soma said. “For example, we can only detect EPO or Darbepoetin for three to five days depending on the dose. Trainers may administer EPO or Darbepoetin six to seven days prior to the race; under these circumstances

the drug cannot be detected but the effectiveness had already been initiated even though the drug is no longer detectable.”

Soma admits that the new techniques he, Uboh and their staffs are working on have a ways to go before they are commonplace and Soma admits that some areas may prove to be “fishing expeditions.”

“It is a brand new approach and if it doesn't work, then we certainly can be criticized, but as far as I am concerned that is what research is about,” Soma added. “If you don't have any imagination, if you don't say listen we are going to try this, it is an approach and it may take two or three years to go down this path, you risk never making the sort of advances we need to make.”

But they are hopeful that meaningful breakthroughs are not that far off.

“We are happy with the progress that we are making or that industry is planning to make,” Uboh said. “We're not too far away.”

It's not just Uboh and Soma

who are optimistic.

Tim Morris, the former Director of Equine Science and Welfare for the British Horseracing Authority, and a Nottingham University professor, said, “the use of biomarkers when they can be specifically linked to a particular substance offers great promise for more sensitive and useful detection of abuse of medications or doping of race horses. Biomarkers can be accommodated within the current testing and regulatory regime. However, approaches such as the equine version of the human athlete passport, which rely on less specific and complex changes to samples taken from horses over time, do present far greater technical challenges, and also probably require regulatory changes to allow such long-term testing and for their use in discriminatory cases.”

But Morris also said he sees the potential impracticalities as well, adding, “The use of biological passports in particular would be a challenge to all but the top-flight horse racing analytical labs around the world.”

No one should view this emerging field as a panacea. It is more a step in the right direction. Not only have dopers consistently found ways to beat any and all drug detection methods, but, as Morris points out, these could also be methods that have a hard time expanding beyond Pennsylvania.

The Pennsylvania Equine Toxicology and Research Laboratory has advantages other labs do not. Because it is

**“The use of
biological passports
in particular would be
a challenge to all but
the top-flight horse
racing analytical labs
around the world.”**

– Tim Morris

associated with the University of Pennsylvania, it has access to people like Soma and others who provide invaluable expertise. And in the Pennsylvania Racing Commission, Soma and Uboh have regulators who are behind what they are doing and are willing to spend more money on research than most state racing commissions.

“The racing commission in Pennsylvania is very generous and very supportive of research,” Uboh said. “I couldn’t say enough about the way Pennsylvania Racing Commission has stood behind research because they know that is what is going to provide information that the commission needs.”

Uboh and Soma say they can and will share their information and research with anyone who inquires, but most other labs do not have the type of

expensive machinery in place in Pennsylvania that is necessary to go beyond standard blood and urine drug testing.

“You have to have the instrumentation to do this,” Uboh said. “You have to have the personnel. So those are two key factors that is needed and many laboratories do not have them. Why not? The commission is not giving them sufficient money to do it.”

Those are problems for another day. For now, the focus is on perfecting the science and making it an important tool in the fight against doping in horse racing.

“This is an emerging field,” Soma said. “Will it be fruitful in the next couple of years? We certainly hope so.”

Coming Next:

**PART VI: RACEHORSE
IS NOT A DIAGNOSIS**

***The final portion of the series
on “A Painful Truth.”***

**If you missed the last four parts of the
series, follow the links here to
read them:**

**Part I:
A History of Drugs in Racing**

**Part II:
War On Drugs?
Vet Records and State Rules say No**

**Part III:
The International Difference**

**Part IV:
Behind Closed Doors: A Look
Inside U.S. Drug-Testing Labs**

Would Racing Be Better Off With USADA in Charge?

By Bill Finley

Perhaps the problem of doping in horse racing is a bigger one than the sport can handle. That, anyway, is the contention of Senator Tom Udall and Representative Joe Pitts, who have introduced the Horseracing Integrity and Safety Act. The act would give the United States Anti-Doping Agency control over drug testing in the sport and handing out punishments for those that it catches.

USADA is an independent agency created in 2000 to take over the anti-doping program for the U.S. Olympic Committee. It was formed at a time when it was believed that cheating was out of control in Olympic sports, particularly in track and field. The U.S. Congress has recognized USADA as "the official anti-doping agency for Olympic, Pan American and Paralympic sport in the United States."

"...the only way to truly give hope to clean athletes is through an independent model. If that's us and horse racing, we're happy to play that role."

– Travis Tygart

Whether or not racing would be better off with USADA in charge or the status quo, a patchwork of state racing commissions and labs spread across the country, remains the subject of debate. But few will argue the success USADA has had cleaning up the sports that it oversees. Its two most noteworthy successes have come in the cases of Marion Jones and Lance Armstrong, high-profile athletes who were exposed as cheats largely because of USADA's determined efforts to catch them.

Does USADA want the job? The answer is yes. "It's obviously an honor to be asked, as we were by



Travis Tygart, *The Jockey Club*

Congress, to be involved," USADA CEO Travis Tygart said. "We absolutely support the independent model for all sports, whether horse racing or any other. From our experience and from what we've seen from around the world, these complex issues and this tension between promoting the sport and policing it means the only way to truly give hope to clean athletes is through an independent model. If that's us and horse racing, we're happy to play that role. Obviously our expertise is not in horse racing; we know the industry and have been invited to learn more about the industry and we look forward, if this moves forward, which hopefully it will, to working with the various industry stakeholders. We would hope for a system not unlike what is done in the Olympic world where the key stakeholders within the industry that embrace a clean culture have rallied around the mechanism that is going to best support their rights and ultimately the integrity of the sport."

Tygart believes the reason USADA can do a better

job policing a sport than the sport itself is because sports organizations have an inherent conflict of interest when it comes to catching dopers. If Barry Bonds is clubbing 75 home runs a year and putting hundreds of thousands of fans in the seats, does it really pay to bring him down? If a trainer is a cheater, but is filling your races with 10 starters per card, does racetrack management really want him or her to go away?

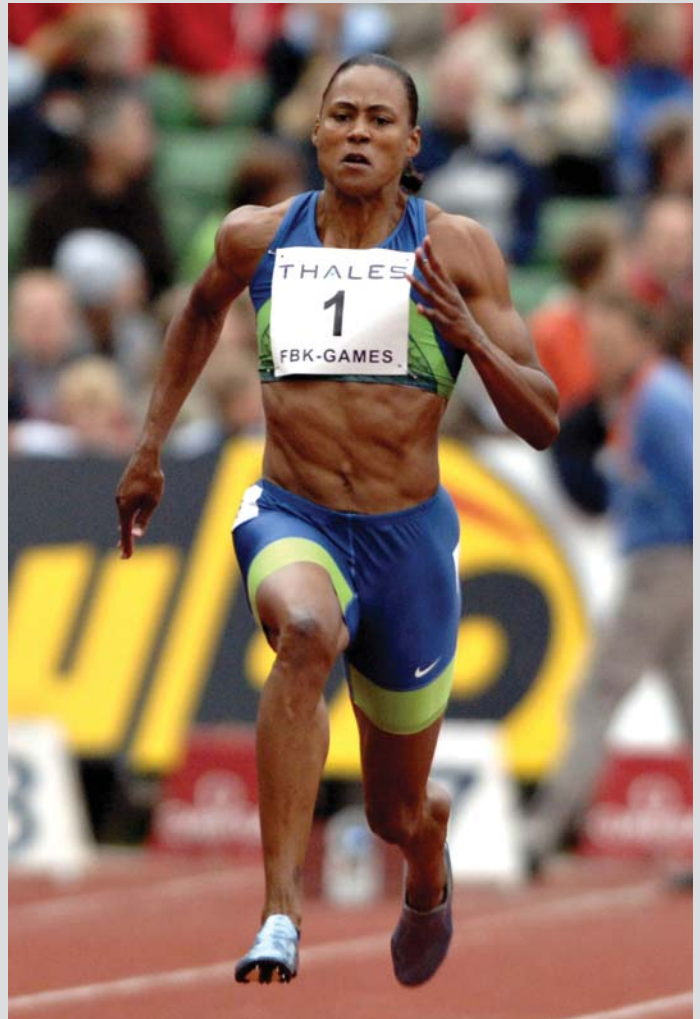
“When USADA was established, there was no longer this inherent conflict of interest where a sport attempts to police itself and the policing mechanism is sometimes directly opposite of the fund-raising and growth of the sport functions that any sport has,” he said. “It’s impossible to both effectively police and promote your sport because some of the very athletes that may be cheating with these dangerous drugs may be the ones you want to promote to put fans in the seats, to grow revenues, to have bigger TV contracts, all the things as a sports organization you have an obligation to fulfill.”

Though he admits he is not an expert on horse racing, Tygart doesn’t buy the idea that doping is under control or that overages of otherwise legal medications are the only thing that the labs should be catching.

“You can’t say that because no one has been caught that the cheating isn’t going on,” Tygart said. “You look at baseball in the late nineties and early 2000s and no one was caught then, either. We now know differently from the Mitchell Report; their estimates were that over 80 percent of the population was cheating. The better yardstick is to look at other sports. You can take a look at a story in inline roller skating and see the story of a 16-year-old kid (Corey Gahan) getting suspended. This is a sport where there is no fame, no money and you had a kid on one of the most sophisticated doping programs that we’ve ever seen because his dad and his coach got the glory of watching him win. You can’t underestimate the win-at-all-costs mentality that is out there, especially when you add big money to the equation. You’d be a fool to think that the temptations aren’t astounding.”

Should USADA move into horse racing, one thing Tygart would like to change is the see-no-evil, hear-no-evil culture that exists on the backstretch. In racing, he sees trainers operating by a code of omertà—the cultural attitude popular in cycling that promotes a code of silence and lack of cooperation with authorities. Honest trainers and owners, the ones most hurt by the dishonest ones, rarely if ever speak up, express any outrage or do anything to help solve the problem.

Tygart and USADA have tried to change that way of thinking in other sports, and their successful



Under Tygart’s leadership, USADA successfully prosecuted cases against leading athletes and coaches implicated in the BALCO scandal, stripping Marion Jones of all medals dating back to 2000, including her five Olympic medals. Like Armstrong, she had never tested positive for drugs. *AP Images*

prosecution of Lance Armstrong was largely the result of his teammates cooperating with authorities. “Those who have agreed to abide by the rules have to stand up and embrace them and that might mean when they see syringes lying around a barn or around the track they pick up the phone and they call the independent entity,” Tygart said. “When people are asked questions under oath they need to testify truthfully; say, ‘yes, these doctors provided me with these drugs and the same doctors that provided me with these drugs were providing all the other athletes on the team with these drugs.’ You have to give support to people within the culture that don’t want to break the law, don’t want a secret race and ultimately don’t want to be frauds in violation of the rules and possibly the law in order to be successful in a sport.”