

2007 Thomas Murray, Ph.D., President, The Hastings Center, Garrison, New York, *Ethics, Genetics and the Future of Sport*

When I first was recruited to Case Western Reserve School of Medicine to create a bioethics center what I discovered immediately that the best allies you could possibly have were experienced clinicians who had the universal respect of everyone in the school. And when they voted with their feet and they came and they said this was important and they took part in our teaching and they led by example. That made my job possible and easy and pleasurable and my sense is that Doctor Waggoner was a person of that sort. So I'm just delighted to be here in his name. And of course my son-in-law, Matt Rennie, who is now an assistant sports editor at the Washington Post just thinks it really cool that his father-in-law is finally getting to appreciate the glories of Ann Arbor and UM. So that's a great pleasure as well. And he's done well by us. There are two beautiful grandchildren in Takoma Park, Maryland, in part with Matt having played a role in that.

So I'll tell you just a little bit about how we got into this issue of performance enhancement in sport. I was at the Hastings Center. I've had two stays at the Hastings Center. I went there in 1979. I was there through 1984. Very early in that first day we got a grant from the National Science Foundation to look at non-therapeutic drug use. There's the usual sort of familiar form which is drug abuse. But then there was this other interesting possibility that someone would use drugs not for pleasure but to try to

actually be more effective for performance enhancement. I took on the role of sort of tracking that down and thinking about that and pulling together a research group to see what we could learn.

So in traditional Hastings Center style I went to try to get the facts straight. Friends of mine had gone into journalism from college and so some of them are doing sports and they introduced me to a variety of athletes. I met Julius Irving in that context, Doctor J. He's a very impressive human being, physically very handsome. The only thing that's totally out of proportion is his hands. They are half as large as they should be for a person of his size. So when I shook hands with Doctor J. I just felt like I was being enveloped. And I met other athletes, Olympians. I met people involved in sports, sports officials, sports athletes themselves, coaches and the like. And we learned a great deal about how, why athletes were using performance enhancing drugs and how they understood that use and what it meant to them. The drugs of choice at that time, we're talking now about 1979-80 were anabolic steroids, various synthetic forms of testosterone and stimulants. Those were the two main drugs of use in sport at that time. And we assembled the research group, learned what we could. I wrote a couple of articles and I thought that was that.

Well, then the U.S. Olympic Committee sort of discovered what I had been up to and they started inviting me to their anti-doping committee's meetings and they made me a member. I did that for about 16 years. Of all the

voluntary things I've done it was by far the most miserable. You would be flown off to distant airports. On weekends you'd spend the weekend in a hotel meeting room, sometimes with no windows and you would be talking about athletes peeing into jars and then you would leave and you never knew what happened. I mean, the USOC quite frankly wasn't all that serious about drug control for a very long time with just a very short exception when Baron Pittenger was the executive director. I'd come home and I'd be full of frustration and then my wife would just say, "Quit." She's very sensible. She'd say, "Quit. Don't do that anymore. You don't get any money. You just take your time. It takes you away from your family." And "Nothing good happens from it." And after 16 years she was basically right.

Things have changed a bit we think with the introduction of the world anti-doping agency and the various national agencies in the U.S. It's the U.S. Anti-Doping Agency or USADA. You actually have a person who has now joined the University of Michigan family. Doctor Don Vereen who can tell you something about the history of this. And Don's an old friend of my sitting right here. You should all meet Dr. Vereen. Now having done this work we never had any money to do any more research until about four years ago when I was able to get some grants and begin our work.

So let me now tell you the story about what I've learned in these. Now I'm going to frame the discussion this way. We're looking at the general

question of how to use biomedicine, when and how to use biomedicine in pursuit of human goals. Sport is one realm of human endeavor. Despite what the football coach told you in high school it's not all that matters, but it can be important. And I think it is important in a lot of ways in sort of telling us about our own humanity. So I'm going to think about the meaning of sport as a human activity and I want to offer just a thesis that a useful way to think about excellence in sport, and here I don't just mean Olympians or professionals. I mean if you get out and you play tennis or you play golf or ping pong or softball or in my case I got bicycling, excellence matters for all of us. I mean it's sort of reaching wherever our natural talents take us and whatever we do to perfect those talents.

Now I use this old-fashioned word virtuous perfection. I'll tell you why. It may come as a shock to you to know that I'm quite confident that I could win the 100-meter dash in the 2008 Olympic Games. All I need is the right equipment, a baseball bat to break the legs of the people who are running with me. So that would not be a virtuous perfection of my natural talents. I don't even have that good of a swing in baseball so you can't go that way either. So by virtuous perfection I just mean the things that we do that are admirable. They could be admirable in many realms of life.

Now over the years I've collected all kinds of objections to the proposition that we should try to control the use of some kind of performance enhancing drugs in sports. So these are all objections to the idea of drug control. And

I've found five that strike me as the most common and the most philosophically interesting. One is the claim of incoherency. Two is the line drawing problem. Three we'll call the resistance is futile objection, Star Trek fans will recognize that one. The appeal to individual liberty is the fourth. And the romantic promethean view will require a little more explanation than the others but call that the fifth.

Here's the incoherency claim. The idea here is, look, there's no way to tell the difference between the various things an athlete might do to enhance their performance. I mean suppose somebody has really, really fancy running shoes and somebody else doesn't. Well, the really fancy shoes are going to allow them to run faster. I understand there are golf clubs now that you can be not very good drivers but you can still hit the ball far and straight. That's an equipment change. What's wrong with that? The claim is that it's incoherent to try to make any distinctions among any of these ways of enhancing performance. And if that's true then there's no difference between eating well and taking gobs of anabolic steroids.

Well, this is a plausible objection. I often think in terms of analogies and cases so I tried to create a case. Now imagine that someone shows up for, we'll make it the New York Marathon. Shows up for the New York Marathon having appropriately registered, prepared to set off, number pinned to her back but she's had the creativity to wear these really cool shoes that have wheels on the bottom. She's brought roller blades. Then just

imagine that the marathon never thought to ban roller blades and so she sets out and she covers the 26 plus miles faster than anyone else. Would you feel that she genuinely deserves to be crowned the champion of the New York Marathon? All of you who believe that please raise your hand. All of you who believe she doesn't deserve to be crowned the champion please raise your hand. You folks have just put to rest the incoherency objection because you see the difference between running shoes and roller blades for the New York Marathon. Maybe we can't fully articulate why that distinction matters yet, but we sure can tell the difference. That's enough with the incoherency claim.

Our critic steps back and says all right, all right. There might be differences but there's no way you can draw a line that isn't going to be arbitrary and that when you do something that's arbitrary it's inevitably bad. Fair enough. Let me suggest something here. Let's suppose that I tell Doctor Margolis "Doctor Margolis we are going to give you an award of ten million dollars. And Doctor Greden, we're going to give you a hundred lashes." It might actually be easier than being Chair of Psychiatry. But you said, "Why are you doing that?" And I said, "I don't know. I just feel like it." Well, that's arbitrary and that's wrong. When you treat people for no good reason differently in that way, punish and reward, that's a moral fault. So if drawing a line is arbitrary in that way it's a terrible problem.

Now let me ask another question. What's the distance between the pitcher's rubber and home plate in baseball? 60 feet, 6 inches, what a goofy number, not even a round number, 60 feet, 6 inches. That's arbitrary. Let's say that we take that objection seriously. We say you're right. That's an arbitrary distance. We're not going to enforce it. Do what you want. What happens to baseball? I've actually asked some pitchers this question and they say, "I'm going to get right up on top of the catcher and I'm going to just throw the ball. And the batter will be helpless." The only chance the batter would have to get his bat on the ball at all would be just to hold out in front of home plate. Baseball would be reduced to a game with a pitcher, a catcher, a bunter and seven infielders. Well, if you like baseball that doesn't look at all like the kind of sport that you enjoy. So is 60 feet, 6 inches arbitrary? It sure is. It could've been 60 feet or 61 feet, the game wouldn't be all that different. But if you made it 5 feet it would sure be different. Or if you eliminated the rule altogether it would be different. So here we have a case where we've drawn a line and drawing the line at 60 feet, 6 inches is defensible, drawing some line is defensible. If you didn't have a line the sport would basically disappear. And drawing it in this particular place, 60 feet, 6 inches, is not unreasonable. It could've been 60 feet, 7 inches or 5 inches or 60 feet or 61 feet. You'd still have something that'd look like the baseball that those who love it love, but you couldn't draw it at 5 feet and you couldn't draw it at 120 feet. It would be a completely different game. So you have to satisfy two conditions. One is that drawing some line is

defensible and secondly that putting it in this particular place is at least okay. There might be other places you could draw it but it still preserves the meaning in the activity. That's the key point. Yes, 60 feet, 6 inches is arbitrary in that sense, but that doesn't make it bad. In fact, if you didn't have it what you cared about the sport would disappear. Anabolic steroids prohibited, nutritional supplements permitted. There's a line in between the two. Does the line get a little difficult and fuzzy at times? Yes. If you eliminated the line would what we care about in sport disappear? I'm going to argue later that it would.

Now the resistance is futile objection. Notice in the first place here the claim is you can try to ban steroids, you can try to ban HDH, you can try to ban EPO and endurance sports. It's not going to work. Athletes are going to use it anyway. And quite frankly what happened in the past Tour De France at least a year before would seem to underscore that this objection is sometimes correct. Athletes will use it no matter what you do to try to stop them. But notice in the first place that it's not an ethical claim. To say that resistance is futile isn't to say that it's wrong to try to enforce rules. It's basically two different predictions. One is that if you try to control drugs in this sport you won't succeed. And secondly it'll be even worse if you try to enforce a ban. There'll be bad consequences of various kinds. Well, that's not an unreasonable argument. But it ignores a couple of things.

Let me give you another example. I live an hour north of New York City and it doesn't happen so often there, but in New York City it's been known that people drive automobiles that don't belong to them. You've heard of this phenomenon? Does it ever happen in Ann Arbor? Well, suppose I come to you and say well, the fact that you have car theft in Ann Arbor, why try to ban it? I mean, people are going to do it anyway. I mean, that doesn't convince you, does it? Well, control is never perfect. It's not perfect in banning criminal activity. It's not perfect in banning drug use in sports. The fact that it's imperfect is not in and of itself an argument to not attempt it because some good comes from the effort to control. You damp down the activity. You've made consequences for it. Successfully controlling something requires, among other things, the public conviction that the effort to control it is right. That's what happened with prohibition, there wasn't strong public support of prohibition. And you need it reasonable infective, not perfect but infective enforcement. We'll put this one on the side and say they've got a point, but that's not a compelling reason not to attempt it if you can get support and if you can enforce reasonably well.

Now the argument for liberty. This is the one we dealt with 25 years ago at the Hastings Center when I talked to the athletes. This is what we learned because at the time there were people making arguments, well look this is the use of anabolic steroids or other performance enhancing drugs in sport. It's just an expression of individual liberty. We should allow athletes to do

it. They're just trying to succeed. They're trying to be the best they can. So that was the positive argument.

Then there was the negative argument. You all know what paternalism is? Roughly speaking paternalism is doing something to or for another person in what you believe is their interest but without their permission or consent. It has its place. We're going to take care of two of our grandchildren. If my three and a half year old granddaughter Tess wants to run out and play in the middle of the street my reaction is not going to be, "Yes, Tess, I respect your autonomy. If you wish to play in traffic that's your"--I'm going to say, "Get in the house." Paternalism has its place but it doesn't really have much of a place with say a 25-year-old elite athlete.

So when athletes were being told, this is the case in the early 1980's, that you shouldn't take anabolic steroids because number one you'll hurt yourself. And number two they are ineffective. Athletes weren't convinced. For one thing they were effective and they knew it. The athletes knew that. And for the other, I mean, the paternalism argument just didn't wash. I understand that there are people who in winter will go on top of a mountain, strap boards to their feet and careen down mountains at 60 miles per hour. Can you believe this? Downhill skiing. Now if I tell someone who does downhill skiing, "Don't use anabolic steroids. You might hurt yourself." They will look at me as crazy. Just somebody not to be taken seriously because we've encouraged them to take these very significant risks and it's

not just downhill skiing. There are a number of sports that carry a significant risk. We not only permit it we encourage it. And then we say don't do this other thing because there's this slight probably you might hurt yourself. It doesn't wash. So paternalism, that's not going to be an effective argument against drug use in sport for adult athletes. It will work for young athletes, but it will not work for mature athletes.

In our project what we discovered was that when athletes who worked very hard, particularly the ones who got to elite or quasi elite level, didn't want to lose and didn't want to abandon their sport. And in the absence of effective drug control the only option we've left them is to level the playing field by using the same drugs being used by their competitors. And that's the story we heard. That is why drug use was endemic in at least a number of sports and continues to erupt as endemic in sports from time to time. Until you can assure athletes that they've got a reasonable chance to compete on a level playing field you will have lots of pressure on athletes to use drugs. So we talked about the coerce of power of drugs and sports. If the drugs are effective they make a difference. And if they're being widely used the pressure on an athlete to use them can be immense particularly when the difference between grand success and failure is measured in fractions of a second or inches. Somebody said that anabolic steroids and baseball don't let you hit the curve ball. That's probably true. However it makes that fly ball you hit instead of going to the edge of the warning track it lands in the

second row of the bleachers. That's a big difference in baseball. And if that's the effect it's having then you need to take seriously whether you are going to permit it or try to control it.

Now to the last argument. This is philosophically the richest one. I've called it the romantic or promethean view. It has several elements. Number one it views human beings, all of us, as fundamentally self creators. We may decorate our bodies with clothing, with piercings, with tattoos. We try to perfect our minds. It could be as works of art. Some people see their body as a canvas or it could be in pursuit of particular other kinds of goals, performance related goals.

It's essential, I think, to understand the cultural and philosophical context and implications of this view. One thing it does is it valorizes. Basically it kind of holds up for praise unfettered will or willfulness. If we want this thing to be this kind of thing, that's what matters, and our capacity for self manipulation. Of all the things that we are as human beings, all of the beings whose lives are lived in these powerful and immensely important webs of relationships that we have, the things that this view pulls out are the human willfulness and the human capacity for self manipulation. You will find many representatives of this view out there and they will be arguing that not only should we permit drugs in sport we should actually celebrate it because it's another form of human self creation.

Now some sports do that. Body building. I understand people have even gone on to become governors of states after having careers as this, but I don't believe that myself. In body building they literally are seeking a particular form and drug use was not just prevalent it was a necessary element, I think. It may still be in body building. But body building's not an Olympic sport. It's a different kind of activity. Now I'd asked what's the relationship of this kind of unfettered pursuit in self manipulation to human flourishing, which is a fancy word just for saying what makes for good lives for people, for men, women and children? I leave that as a question.

Now one of the implications of this view is spelled out by a film critic, Noelle Caskey, who does not support this view herself but she describes it. She says, "Anorexia is the cultivation of the specific image as an image. It is a purely artificial creation and that is why it is so admired. Will alone produces it and maintains it against considerable odds." Now you see how this is exactly an example of the kind of willfulness and self manipulation I've just talked about. But here it's actually used as a description of a condition which can be a terrible disease and indeed a lethal disease. One should be cautious about how far to take this notion about the human prometheus.

Now what I worry about is a little more down to earth and that is the triumph of the performance principle. By that I just mean the pursuit of maximum performance by any means, whatever means at whatever cost. There's a

sport called power lifting which is like weight lifting in that they're lifting weights. But it's not an Olympic sport. It's got a different set of governing bodies. In fact, it's got many, many different associations. Some of them are drug free or at least so advertise themselves. Some of them basically say we do no testing so come in and do whatever you can and just get those weights up there. And so power lifting provides a very interesting experiment in nature of what will happen if you remove any efforts to control performance enhancing drugs in sport. And I think the jury's out. I'm not sure what it's in the end going to tell us. But it's a real phenomenon. It's going on right now and we're continuing to pay attention to it. In my most recent project we have two world champion power lifters, a husband and wife team, who are now actually professors at the University of Texas, who have been studying the evolution of power lifting and particularly the role of drugs in power lifting. They have a great chapter in the book that will be coming out soon. My sense is that the power of the performance principle will unavoidable triumph if you refuse to set any limits. If you refuse to draw a line anywhere you are basically saying do whatever. It will result in greatly increased health risks to people who then pursue those limits.

Now here I try to make maybe a subtle distinction. I've already said that telling a downhill skier you shouldn't take anabolic steroids because it might hurt yourself was paternalism and tough to justify. Yet I want to be able to say that it makes sense to have rules to govern a sport that would reduce the

likelihood that people will in fact be driven to these extremes. So yes I am doing the rules for more reasons than just to protect them, but it will have the impact of protecting them if we're successful in enforcing the rules and I would argue that's defensible.

Now I also think that if the performance principle triumphs we're going to lose what's meaningful about sport. And I'll say more about that. Now don't get me wrong. I'm not against all forms of biomedical enhancement. There are lots of things we can do to enhance human form and function and many of them, I think, would be quite desirable. So again I made up a hypothetical years ago. Let's imagine that a neurosurgeon who does the most sensitive and delicate operations is concerned about the normal tremor that all of us have. If you hold your hand out here and you watch it closely enough, see you've got a little bit of a tremor. There's nothing unhealthy about it, it's just part of normal human physiology. Imagine that a drug comes along that it's noticed that one of the side effects of this drug--and it's a pretty innocuous drug that's used for other things, but one of the side effects is it just knocks down that tremor so your hand becomes much steadier. A neurosurgeon gets the idea that if I took that drug maybe that would actually steady my hand during this procedure. So I'm going to try it. And then take this hypothetical further on, many neurosurgeons try it. They actually run a randomized controlled clinical trial to see what the results are and the results are unequivocal. The patients of neurosurgeons who have

used the drug do better, faster recoveries, fewer complications, more successful surgeries than the patients of the physicians who don't. That's the set up, now the question. The person in the world you love the most needs exactly one of these procedures. For some of you that person will be yourself. For some of us it will be somebody else. It will be our child or spouse or parent or whomever. It doesn't matter whoever that person is. And here's your choice. You go into the Ann Arbor Neurosurgery practice and you've got two options. Surgeon number one says, "Well, I think it is unnatural to use performance enhancing drugs. I think it takes away from my agency in the course of this surgery. So I would never use them." And the second surgeon says, "I use them every time I operate. My patients do better." Which surgeon do you choose for your loved one? Who chooses number one, the one who goes au natural? They are otherwise equal. Number two has better results because he or she uses the drug. Who chooses number two? I choose number two. It's hands down. It's easy. That's a performance enhancing drug. Now if you read the report of the current president's commission council they would seem to be opposed to that because it detracts . It's biomedical intervention .It seems to me they don't get it on that point.

What matters is the point of the practice. If the point of sport is to display natural talents and their perfection then drugs don't belong. If the point of neurosurgery is to make patients better and this drug without harming the

neurosurgeon helps patients, what's the problem? It seems that one would embrace the use of a performance enhancing drug in that context. It's not the means per se. It's not that it's a drug or biomedical intervention. But it's the relationship of that means to the goals of the practice, to whatever it is we value about this activity and to in the end to human flourishing.

Quickly about genetics, the challenge of genetic enhancement in sport which people have called gene doping. It's the same techniques that are being developed towards gene therapy, could be used to try to improve someone's athletic capacities. So if we value in sport natural talents and their virtuous perfection what do we disvalue? And I think what we disvalue among other things are any interventions that would distort the relationship between those talents, their virtuous perfection and natural excellence. Now what makes a talent natural? Here it gets complicated. Athletic talents are by in large what geneticists will call complex traits or complex phenotypes. It's unlikely that any one gene is going to have much of an effect on athletic ability, but there may be some exceptions. I suggested some years ago the metaphor of the genomism ecosystem rather than beans in a bean bag, the old bean bag model in classical genetics. Think of genes as operating an extremely complex ecosystem with many, many positive and negative feedback loops inside each cell, then in the tissues, then in the body, then with the external environment. It's a very complicated, fascinating picture. But it means that you can't count on simple interventions having the outcome that you want

for them to have. Can I suggest if anyone's interested they can download the report. It's a free PDF on the center's website on behavioral genetics, which it's the best discussion I've ever read and it's received broad praise. I didn't write it. Colleagues of mine did about trying to understand complex traits, particularly behavioral genetic traits. And athletic traits are behavioral traits.

Now how should we think about differences in natural talents because I was just trading emails with the sports writer, John Feinstein, do you know who he is? He is author of *A Good Walk Spoiled* and a number of other fine books about sports. He's going to come with us to Capitol Hill. We're going to do a briefing in the Senate office, the Commerce Committee hearing room, on genetics and sport in about a week and a half. And Feinstein's going to come and do it. And he was saying that he really wanted to be a basketball player, but he was too short and couldn't. And I said, well when I was twelve, and this was true, I was this height. And I had great dreams of being a basketball player. But I had a couple of liabilities. One is I never grew. Two is I weighed 125 pounds or so, so a breath of air could blow me out of the way. And three was at the top of my leap you could stick two credit cards under my shoe. So there are inequalities in natural talent.

Do you know the Kurt Vonnegut story? I can't remember the story's name but it's in one of his short story collections. But the handicapper general's job is to make sure that no one has a natural advantage over anyone else. So physically gifted and graceful people have weights tied to them. Very smart

people have implants that emit shattering noises into their brain at regular intervals so they can't think for very long without interruption. Do we want to handicap the general model of sport? I don't think so. Should we think about and add the differences in natural talent as inequalities to be redressed or as just expressions of human variation that we can celebrate? And my take is that the Olympic movement opts for the latter. And I think the alternative is this romantical promethean triumph of the performance principle.

There's a new thing that's come that showed up. And that is the idea that one would not genetically manipulate, not try to change the genes in your cells, but try to test for particular versions of the genes. And so there's a gene called ACTN3 and there are a number of versions of it but one particular version, one particular allele looks like it's a stop mutation. So if you have this particular version you can't make the full protein product and so you don't get the protein. Now your cells function fine. It turns out that the protein's made in muscle cells. And there's another version called ACTN2 and people who have a double stop, two versions of the defective one in ACTN3 usually have healthy ACTN2 and there's no disease issue here. They're fine. There are no symptoms. However, some scientists have developed some early evidence that people who have two of the mutated forms, so they're not making any of the protein, they have faster twitch muscle fiber and may therefore be better adapted for sports like power sports

and sprinting sports. Whereas people who have two healthy versions of it have slow twitch--are more likely to develop slow twitch muscles and so may be more suited for endurance sports. So for 110 dollars Australian you can get a kit, take a swab inside the cheek, put it in the vile, send it back to the lab. And they'll tell you whether you're a double no, whether you're one and one, heterozygote or whether you've got two full versions of the protein. And the claim is well you can use that to help decide what sports that individual ought to be in.

Well, who are they going to use this test for do you think? I mean, they're not going to do it for many 61-year-old bioethicists I think. It's kind of set for me. I mean, I kind of know what I'm going to be doing athletically or not. I'm a bicyclist. That's what I do. Who do you think they're going to use this on? Yeah. There is some activity among sort of barely adult athletes who are maybe wondering if they're elite athletes or not. But, yes, I think a lot of these are going to be children. Now if you go to the website of the company in Australia offering the test they will tell you it's not for children under 18. But they never see you. They just get the cheek swab you send in and they send you back the results. So are people using this test to ascertain whether their kid is going to be a marathoner or a hundred meter dash runner? Some people are.

How valuable is this information? My guess is knowing what we know about the complexity between genes and complex phenotypes that the

information's going to be about as useless as you can get. It's not going to be worth 110 dollars Australian. Nonetheless people believing in the power of genes will still perhaps still young people towards or away from sports that they might love and might actually be well suited for. So that's the worry.

In the end we have a clash of meetings. How should we understand sport? How should we understand the meaning of the Olympic Games? And what the WADA, World Anti-Doping Agency, code calls somewhat vaguely the spirit of sport. They're hinting at something that I believe is important but needs to be spelled out more clearly. Should we see sport as exhibitions of maximum human performance and human self manipulation? Well, that's one view. It's not a crazy view and there are plenty of people out there who hold that. And if that view prevails then we probably will cease worrying about drugs and sports. Or should we see it as a celebration of human differences, as variations in natural talents admirably perfected? As people point out Michael Jordan never could play baseball. He couldn't hit the curve ball. So wonderful athletic talent in one realm does not necessarily translate to another. Is that how we should see the future of sport? And that's a question that we will be wrestling with and our children will be wrestling with and I think generations on to that will have to wrestle with because there will be many, many more ways of intervening pharmacologically, surgically, with various kinds of biomedical devices and prosthesis. All of

which sport will be confronted with and will have to make decisions about should this be part of the sport or should it be given its own special niche in sport or should it be banned from sport? And that's a question we'll all have. These are my coordinates and this is where I work. And if any of you are in the area give us a warning and we accommodate visitors every time we can. It's an interesting group of people I work with, herding cats but they're smart cats. Thank you very much.