

Environment and Doping

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As was just mentioned, I am not an expert on environmental hormones. Human beings themselves are part of nature, and I have heard it said that use of drugs in sports, or doping destroys that natural environment. In this sense, the subject of "doping" is connected with this symposium.

The environment in which we live is full of illegal drugs. They are readily available on the street while we still don't know if they are harmful to health or illegal. Although we have already discussed this, environmental hormones and doping have several things in common.

One of them is the fact that they are widely recognized to be what you might call a "social problem." The case of Ben Johnson's use of illicit sports drugs at the Seoul Olympic Games a while back is for example recognized as a problem in various senses of the word by people throughout the world. Then there was the marijuana incident at the Nagano Olympics. There was also the question of whether or not athletes may use cold medications sparked by Raducan being stripped of her gold medal at the Sidney Olympic Games for having taken cold medicine. Most people recognize that use of prohibited substances could become a serious problem if not addressed. This is also true of environmental hormones.

The second thing would be hard to understand unless you are familiar with the problem. In conversations among sports doctors, it is often said that the topic of doping should be taken care by doctor of internal medicine because it is not well understood by orthopedic surgeons. In any case, the problem of doping is difficult to comprehend for those who are not familiar with such drugs. I also hear athletes complain that it is difficult to know what one should eat and drink. Environmental hormones and use of illicit sports drugs also have in common the fact that they are difficult to understand.

The third thing they have in common is the fact that it is hard to know from the outside what is being done about them. In other words, although they are social problems, we don't know what the condition of those harmed is or what measures are being taken to deal with them.

I would now like to talk about a few cases that demonstrate how difficult it is to understand the problem of doping. As is given in my resume, a substance called "nandrolone" has recently garnered a lot of attention in the world of sports. Nandrolone is a protein anabolic steroid (anabolic androgenic steroid), which was often used for enhancing muscular strength in the 1950s.

Nandrolone did not subsequently have any significant presence on the sports scene until the past two or three years, when the number of track & field and soccer stars testing positive for the substance began to increase. Of course athletes with some policies were caught using the drug, but the number of athletes that had been models of cleanliness caught using the drug is on the rise.

Of course any athlete will insist that he is "clean." In some cases the national federation to which the athlete belongs have protested to the International Federation (IF). In one case, the athlete contended that he had eaten Spaghetti Bolognese and the drug must have been contained in the red meat used in the spaghetti. The athlete insisted that the cow must have ingested the steroid in its food, with the elements of the steroid subsequently migrating to and becoming mixed in with the flesh. Although he insisted he was innocent, rules are rules, and the decision was therefore not overturned.

Recent cases such as these however also have points in common. One is that most athletes had taken so-called "dietary supplements." Another is the rigorous training that top athletes go through.

When the supplements were actually analyzed, nandrolone was not present in some cases. A well-known research group in the UK therefore conducted an experiment whereby athletes of a certain level subjected to rigorous training were provided supplements that did not directly contain nandrolone. In the

experiment, the amount of nandrolone in urine samples was found to rise in several of the athletes even though the supplements did not directly contain the substance. Even in the face of such scientific evidence, positive testing for nandrolone is not overturned. If the results of this experiment are a fact, it means that an athlete could test positive for a banned substance after ingesting something that does not actually contain the drug in question. Because this is really hard for athletes and coaches to comprehend, it has triggered hot debate.

Difficulty in proving is characteristic of doping and is also a topic for discussion.

The scientific method of comparing with the mean value \pm SD to see if there is any significant difference and then proceeding while testing is used for research involving the effect of many drugs.

It goes without saying that it is hard to conduct experiments using human beings as subjects. Because top athletes are above average, they are ranked farther away from mean \pm SD or 2SD. In some cases, they may even be statistically not applicable. If top athletes are applicable, it is extremely difficult to scientifically prove whether doping is effective or not in the previously mentioned case using control.

With the conventional scientific method of handling above-average athletes, because we are entering an area that is hard to deal with, I think perhaps the problem of doping may resemble the problem of environmental hormones.

Dietary supplements are a huge problem. On the international level, the dietary supplement market is said to be worth 2 to 3 trillion yen. Although I did not investigate this myself, I hear the market for supplements in Japan is worth 300 to 400 billion yen. Because dietary supplements are a business, even if you read their information well, in most cases it would not provide anything that may hinder sales. In many cases the supplements claim that they do not contain any banned drugs but in fact do contain muscle strength enhancing drugs. In some cases dietary supplements are contaminated with steroids during the manufacturing process, but in others they are intentionally added by aggressive marketers during the distribution process. From the standpoint of the athlete, the athlete will use the fact that the substances are not mentioned in the information as an excuse. The fact that information is not accurately conveyed to the party concerned also resembles the case of environmental hormones.

Even though the supplement may not directly contain a substance, it may contain a precursor that metabolizes in the body and in some cases changes to the preceding steroid, making them even more difficult to understand.

From the user's perspective, the user such as the athlete depends upon regulations. Drug regulations make the situation even more difficult. Mark McGuire, the home run king of American major league baseball, who incidentally will retire from baseball, used a drug called "Androstenedione" This substance has been banned by the International Olympic Committee (IOC) but has not been banned by major league baseball. McGuire's excuse was that he purchased and ingested the substance within the United States in the form of a dietary supplement. This is an example of the ambiguity caused by nonuniform national and sports regulations.

As for the origin of this case, the Food and Drug Administration (FDA) that controls food and drugs in the United States, decided to deregulate pharmaceuticals to curb the rising cost of prescription drugs in 1994. At this time several steroids were exempted from monitoring. The market therefore began to treat preparations containing ingredients that used to be regulated as drug as dietary supplements. The manufacturer was consequently relieved of his obligation to provide an accurate description as is required for drugs. I think this administrative decision has had a large impact. I hate to repeat myself, but this means that differing standards are being employed by major league baseball, the IOC and the U.S. government. I think this is also a cause of confusion.

Difficulty in understanding always comes up in discussions of doping, and there is a question concerning the difference between supplemental vitamins and food. Vitamin supplements of course are

not a banned substance, but people who take vitamins in the form of a white pill are taking them as a "drug." If you try to discern the difference between the act of taking a vitamin pill and the act of eating vegetables that contain an abundance of vitamins, the question soon becomes mind boggling.

I would therefore like to touch on what the sports world is doing about the confusion involving the use of illicit sports drugs. There are currently three reasons why use of certain drugs is banned by the world of organized sports: The first is the problem of health. The second of course is to guarantee fairness of sports and observance of rules. The third is because doping is a social problem just as illegal narcotics are. Those involved in sports administration agree. Because we have started from there, we are at the stage where various regulations are created.

There are various questions concerning the definition of doping. It is currently defined by stipulating a category of banned drugs and a banned method of it. Doping is considered to be the presence of banned drug elements in the body. In other words it can be proved by presence in urine or in the blood. This is what constitutes doping. Regulations are created and agreements are formed so there will be no need for debate over what was drunk, eaten or not injected.

Not all banned drugs are given in the list of banned drugs, but the wording also includes related substances. If you think this is scientific, it may be an ambiguous expression. When dealing with something that is uncertain, I think it might be important to clarify the process of creating regulations with a solidly grounded philosophy.

Last week I had the opportunity to visit Europe. I heard that they might be able to tell by circumstantial evidence only.

We heard indirectly that doping had been carried out systematically in East Germany before the destruction of the Berlin wall. When we asked those involved, we heard that East Germany no longer exists, and there is insufficient direct evidence of doping, but there is no doubt there have been victims attributable to systematic doping in East Germany. Although there is no direct evidence, we can't just forget about it. The current government of Germany is not directly liable, but has created an organization for helping victims of sports drugs. The person in charge spoke with us about one of their policies.

Without hard evidence to back it up, taking action based on circumstantial evidence is reasonable. I think he also indicated one method of dealing with sports doping.

Thus we respond to the difficulty in understanding doping in the sports world by creating regulations while paying proper attention to the step of forming a consensus. Even having formed a consensus, some people may not agree, and in many cases the debate cannot be simply resolved. Up to now this has been a problem for the sports world only. The International Olympic Committee has taken the leadership, and -I think that narcotics may be involved - the governments of various countries have taken action instead of leaving it up to the sports world. Just prior to the Sydney Olympics, with the leadership of the IOC, the "World Anti-doping Agency" was formed with governments taking charge.

From the coming year, this cost will have been covered by both IOC / sports world and government / inter-governmental organization. With governments regarding sports as part of the national culture (the Japanese government is of course also actively involved to a large degree), the problem of doping in sports is handled with emphasis on forming a consensus among governments while compensating for differing senses of value.

If only the process of forming a consensus is emphasized, the question will never be settled. Luckily for the sports world, the Olympic games are held once every four years and global athlete championships are scheduled in the firm season. Therefore, there is the time for the big event for which a clear decision must be made has been determined. The time limit for formation of a consensus is therefore treated as a single time axis. This might be a good situation for handling this problem in sports. In any

case, forming a consensus as much as possible within the possible range, created regulations and restrictions and then enforcing them is the direction we would like to take in the future.

If you look around for them, drugs on the IOC list of banned substances can be easily obtained even in the drug store in front of where this event is held. I'm sure you are aware that so-called cold remedies containing ephedrine are available. Substances such as methyltestosterone that belongs to the anabolic steroid hormone group can also be easily obtained. It is sometimes not obvious that such muscle strength enhancing drugs are contained in over the counter dietary supplements and so on. The writing on the container is usually so small you can hardly read it. Not informing purchasers that banned substances are easily available could realize an extremely dangerous situation.

In any case, concerning doping control and anti-doping, an anti-doping agency has fortunately been formed in Japan. We refer to it as a "domestic control agency." I think the degree to which the agency is able to control doping in the country is very important.

Although the situation is quite removed from that of environmental hormones, I am glad I was able to talk about how the sports world is handling the uncertain problem of doping. Thank you very much.