

August 17, 2004

Top Athletes May Be Running Into a Tall Hurdle: Themselves

By DAVID LEONHARDT

Human prowess is not supposed to have a reverse gear. Computer chips shrink and become more powerful. Skyscrapers grow taller, and spaceships travel farther. Medicine keeps people alive longer.

But for almost a decade, the Summer Olympics have offered a mysterious exception. In some of the most basic ways imaginable - how fast people can run, how high they can jump, how far they can throw - the march of progress has stopped. The track and field athletes competing in Athens Olympic Stadium over the next week and a half may well struggle to match the performances of their predecessors.

Four years ago, no relay team was able to cover 400 meters as quickly as four United States runners had in 1988 in Seoul, South Korea. Carl Lewis jumped farther in Seoul than any man would 12 years later in Sydney, Australia, and Jackie Joyner-Kersey did the same among women.

In more than two-thirds of track and field events, in fact, the gold-medal performances in 1988 would have been good enough to win again in 2000. Just one result from 1976, by contrast, would have won in 1988, among the 32 events in which comparisons are possible, said Raymond Stefani, a professor of electrical engineering at California State University at Long Beach who studies the Olympics.

In more than a century of Olympic history, only world wars, by killing millions of people in their athletic prime, had previously caused this kind of stagnation.

So its return has inevitably raised the question of whether human beings are finally approaching the limits of physical accomplishment, after decades of unfulfilled predictions about such limits. Many athletes and coaches, and some scientists too, say the answer is probably yes.

To others, however, a less natural explanation is more likely. At least some of the record performances from the 1970's and 80's owe themselves to the miracle of drugs. Only now, after a decade of more effective drug testing, do athletes seem to be catching up to the steroid-aided results of the past, many Olympics watchers say.

The Athens Games have the potential to clear up some of the mystery. More stagnation will suggest that

athletics might well have entered an era of only minuscule improvements.

"Athletes are reaching their potential," said Mark Elliott, an assistant track coach at Louisiana State University, which has highly ranked men's and women's teams. "You won't see much faster times anymore. If there's any going beyond the records, it's just going to be very, very small."

A return to progress, on the other hand, could mean that the limits remain somewhere off in the future.

"We're moving back to normality," Professor Stefani argued. "There's nothing I see that says we're hitting a plateau."

Nearly every day over these Summer Games will offer a new data point. Men and women will put the shot tomorrow at the Ancient Olympia Stadium, the site of the original games almost 3,000 years ago. In 2000, the men's shot-put winner launched it 21.29 meters, and 20.56 meters won for the women. Neither result would have been good enough to win in 1988. The argument that the limits to performance are within sight has obvious appeal. Somewhere, the limits exist - nobody seems to think that a one-minute mile is possible - and athletes will eventually approach them.

Beside the stagnation of Olympic results, the recent progress of women in sports and a dearth of breakthroughs with new equipment offer reasons to wonder if the time is now.

For decades, female athletes were closing the gap between their performances and those of males. Women had long been denied the athletic scholarships, endorsements and training resources that men had received, and as the playing field began to be leveled, women made rapid improvements.

In 1970, the women's world record in the 400-meter dash was 18 percent slower than the men's. It is 10 percent slower today.

But many researchers say the remaining gaps could exist forever in most sports. Men have a higher concentration of hemoglobin, which carries oxygen from the lungs to the rest of the body, allowing them to breathe more efficiently than women can. Men also have less body fat on average, and thus more muscle per pound of weight, than women do.

"Most of the difference today is really due to biological differences," said Phillip B. Sparling, a professor of applied physiology at the Georgia Institute of Technology. He estimates that men's performances will remain roughly 8 to 11 percent better in most events.

The gaps between the men's and women's record have actually increased somewhat in recent years in the races at 100, 200, 400, 800 and 1,500 meters. The difference in the marathon has shrunk, although it is still slightly more than eight percentage points.

Athletic gear seems to have followed a similar path to female athletes over the last decade. Fiberglass

poles that make vaulting easier, synthetic tracks that mitigate the effects of bad weather, and deeper pools and lane lines that calm waves have all existed for years. Perhaps the most heralded recent invention, the full-body swimsuit, ended up having almost little if any effect on times, many say.

"We've reached a peak from a technological standpoint," said Rowdy Gaines, a gold medalist in 1984, who is now a commentator for NBC Sports. "I do believe swimming is reaching a plateau. I don't think it's going to happen in the next four to six years. But I think it's going to happen in my lifetime."

Unlike runners, swimmers and weightlifters have continued to improve in recent Olympics, but not at nearly the rate they once did. Swimming times fell less between the 1988 and 2000 Summer Games than they did during a typical four-year span in the 1960's and 70's.

But if athletes are now beating times from the 80's that were drug-aided, as many people suspect, any kind of gain starts to look impressive. The new swimming world records set in the first few days of the Olympics, including one by Michael Phelps in the 400-meter individual medley, seem to support the idea that athletes have not yet reached the limits of performance.

The idea that no future generation will devise ways to top this one is as misplaced now as it has always been, say those who believe the stagnation has more to do with drugs than anything else.

"When I was competing in the early 60's, we thought our times were pretty close to the human limit," said Phillip Whitten, the editor in chief of SwimInfo, a magazine that covers the sport. "And now they're pretty good times for 13- and 14-year-old girls."

Track and field results may have slid backward because the doping was widespread for longer in the sport for longer than it was in swimming. Many top runners have recently been investigated for suspected drug use, including Tim Montgomery, who holds the world record in the 100-meter dash.

"We're not comparing clean to clean" in track, Professor Stefani said. If drug testing is able to stay a step ahead of drug use - no sure thing - he predicted that progress could return to its old trajectory: roughly 80 years from now, the record time at 800 meters, for example, would simply be double today's record at 400 meters.

The Olympics are also not the only venue for studying times, of course. In some events in which gold-medal times have increased since 1988, like the men's 200-meter dash, the world record has since been broken, at another event.

But records are not falling as they once were, suggesting that the current period is not normal. To most experts, the odds have risen that human beings have entered an era of only small improvements.

"At some point, we have to reach that," said Dave Johnson, director of the Penn Relays. "That's the way I see it. But the wonderful thing about sports is that you're always surprised."

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