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FASTER, HIGHER, FARTHER FOR AS LONG AS POSSIBLE?!

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Abstract

Athletics is the sport that cannot be influenced by subjectivity, because the highly-advanced modern technology allows the measurement of performance with great precision. World records are increasingly rare. If over 20 years were needed to eliminate a few seconds, nowadays, performance improvement is limited to tenths or even thousands of a second, because the human body has its own biological and biomechanical laws.

One of the most common journalistic expressions is that records are set to be broken. But how far can we push the physical limits of the human being? This paper is a journey back in time to highlight the most impressive world performances in the history of athletics.

Keywords: track and field, world records, physical limits, sports performance

Introduction

"The issue addressed has arisen with the emergence of a real cult of world records. Always faster, higher, farther is the Olympics bet with the limits of the human body. Being at the origin of sports competitions, the Olympic spirit initially aimed to measure the athletes of a generation, without comparing their results with the performances of their predecessors. If one of them invented a technical artifice (see the backward-twisting high jump), the others were able to imitate it quickly" (Aldhous P., 2016).

"Athletics is included in the sports category where performance can be accurately measured; the measuring tape and the timer, which proved to be sufficient in the beginning, were replaced by electronic devices. New world records are increasingly rare, and when they occur, growth margins are relatively small, which is evidenced by the 23 performances lasting for over 15 years. This tendency equally concerns men and women, the sprint, but also the endurance events, disciplines that engage both the upper and the lower body. In addition, some performances established in the 1980s, associated with massive doping, have not changed since then" (Nourygat V., Jacquet, K., 2018).

"Nowadays, the race for records in athletics considerably loses speed. According to the Institute of Biomedical and Epidemiological Research in Sport (IRMES), in Paris, which analysed more than 3,000 world performances since the first edition of the modern Olympic Games, world records peaked in 1992" (Silk, H., 2012).

"Human limits have already been calculated. According to the mathematical model developed by researchers, half of the world records will disappear in 2060, despite the athletes' commitment, the carefully scheduled workouts and the quality medical supervision, because the physiological limits / thresholds are not far from being reached" (Shannon, R., 2010).

"According to specialists (Jean-François Toussaint, Director of IRMES), every year a discipline ceases to progress. Today, records continue to be broken particularly in women's sprint events with special technical features (hurdles), marathon and pole vault" (Nothias, J. L., 2007).

"Many disciplines go through periods of stagnation, even regression, a phenomenon that more often affects the female than male events" (Vazel, J. P., 2016).

Records

Women's short sprint

The time achieved by Florence Griffith-Joyner in 1988, over the distance of 100 m, is inhuman/ superhuman. Even though "Flo Jo" was never tested positive, her physique, specifically transformed by anabolic steroids, as well as her premature death at only 38 years old, amplified the doubt in the hearts of athletics lovers.

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For more than 15 years, the best women sprinters in the world stagnated, her time (10.49) being apparently inaccessible over this distance. The next two performances in the history of the event only increased the suspicion: Marion Jones (10.65) spent 6 month in prison for doping, and Carmelita Jeter ran the 2nd fastest time (10.64) late, (too) long after the end of the competitive season.

Women's 800 m

The 1980s and early 1990s were marked by spectacular progress in some events, a phenomenon that specialists associated with the State doping. Their suspicions were mainly directed towards the former German Democratic Republic. Thus, the country with only 17 million inhabitants won, at the Seoul Olympics (1988), 37 gold medals, a track record ranking it on an incredible 2nd place, behind the Soviets, but before the Americans.

Some colossal performances amazed the world of athletics at that time; among them, the time of Jarmila Kratochvilova over the distance of 800 m, which also remains the world's oldest record (1:53.28). The systematic doping of athletes served the interests of the communist regime, in its competition with the German Federal Republic. The administration of hormonal cocktails to (often minor) athletes caused them serious physical and psychological disturbances and had horrible effects on their (unborn) children.

Long-distance races

Among the outstanding performances achieved in the early 1990s, we mention those of the Chinese female runners, who dominated the long- and middle-distance events at the 1993 World Championships. The Chinese coach Ma Junren managed to place his athletes on the highest steps of the podium in the races over the distances of 1,500 m (1st place), 3,000 m (1st, 2nd and 3rd places) and 10,000 m (1st and 2 places). It was a unique situation, especially for the 3,000 m, where 5 female athletes broke the world record the same day.

To achieve that, the girls had been subjected to unprecedented workloads, which were possible only through total control over the athletes. In the winter of 1992, the group trained by Ma Junren had covered the equivalent of 114 marathons (!), making the doping spectrum float over these results.

Men's 100 m

Mathematical equations have decreed that man will never run under 9.66 seconds over the distance of 100 m. However, the theory was contradicted by Usain Bolt, who managed, in 2009, an exceptional 9.58. To note that the Jamaican is outside the somatic standards for this event, with his 196 cm, but which allow him an impressive stride and consequently the smallest number of steps (41.5) in a race.

Scientists believe that Bolt could have run even better. Thus, maintaining the speed in that race (37.5 km/h), but with better latency at the start (0.1, not 0.133 seconds), would have produced a time of 9.55 seconds. Mathematician John Barrow (Cambridge University) estimated that, under wind conditions at the maximum permissible limit (2 m/s), he would have gained 5 hundredths (9.50), and if the race had taken place at an altitude of 1,000 meters, he could have finished it in 9.47 seconds!

Throws

For men, world records in running events are generally more recent than for women (Usain Bolt, 2009; van Niekerk, 2016). On the contrary, in throwing events, the most recent one dates back to 1996. The East German discus thrower Jürgen Schult (74.08 m in June 1986) and the Soviet hammer thrower Yuriy Sedykh (86.74 m in August 1986) are the world's oldest record holders.

But in the hammer throw event, the last three to throw over 84 m, namely the Belarusians Vadim Devyatovski (84.90 m in 2005) and Ivan Tikhon (84.51 m in 2008), as well as the Hungarian Adrian Annus (84.19 m in 2003), were suspended for doping at a certain time in their careers.

In 1987, the personal record of Gabriele Reinsch was 64.12 m, an honourable one, but insufficient in the world context. The East German thrower aged 25 years started the next season with an amazing 71.64 m in the first competition, at the beginning of May. In about two months (July), she adds 5 m, reaching 76.80 m from the first attempt in an international match between East Germany and Italy, held in Neubrandenburg, an amazing world record that has survived until today.

Long jump

In the male long jump, Mike Powell's performance (8.95 m) has remained unbreakable since 1991. This incredible record surpassed the equally surprising record of his compatriot Bob Beamon, whose best performance dated from ... 1968. Beamon's jump represented a 7% improvement in his usual performance. Extrapolating to Bolt, he would have been supposed to run the hundred in 8.98!

Moreover, the record was broken in Tokyo by two athletes, during the same period of time: Mike Powell and Carl Lewis, but the latter was also accused of doping.

Pole vault

The performance recorded by Serghei Bubka (6.14 m in 1994) lasted for 20 years. It was due to his technical skills, but also to the financial interest that made the Ukrainian raise the bar with only 1 cm at each competition (knowing that each record was generously rewarded). His results brought again into focus the problems of Soviet sport in the 1980s, but the performance of the Frenchman Renaud Lavillenie (6.16 m in 2014) left them behind.

Conclusions

Olympic records depend on several parameters that we can or cannot control. Obviously, it is impossible to predict progress related to doping, technology or environmental factors. However, we must consider that, despite the tremendous progress of the sports industry and economic means involved for more than 50 years, the gap between records, in terms of time, becomes increasingly smaller, and a physiological limit is very likely to occur.

It should be noted that man has always wanted to go farther, higher and to be stronger, but the limits of the body do not necessarily correspond to the expected ones. The will to excel is omnipresent, dominates the human species, and it is difficult to imagine that one day it will disappear.

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