



ANALYTICAL COMPARISON OF USAIN BOLT'S EVER BEST TIMING OF 100M ALONG WITH THE BEIJING OLYMPIC RECORD IN 2008

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Abstract

In the present study efforts were made to determine the “Analytical Comparison of Usain Bolt’s Ever Best Timing of 100m Along with the Beijing Olympic Record in 2008”. At the 2008 Summer Olympics in Beijing, Usain Bolt made the world record in the 100 m sprint with a timing of 9.69 sec. Just one year later, 2009 World Athletics Championship he has again broken his own record at Berlin with an amazing ever best time of 9.58 Sec. A few months after Beijing, Bolt could have run about one-tenth of a second faster than his previous best time. In the history of the 100m records it was held first time the longest margin of 0.11 fraction better than the existing record. In this paper we scientifically analyzed the results of Usain Bolt in Beijing and Berline.

Introduction

The 100m can rightly be considered as the most remarkable event of athletic championships. The sheer speed of the 100m allows the winner to claim that he/ she is the fastest runner in that competition. The world-class athletes normally cover the distance of 100m with an average steps of 45, but the Bolt it completed with 41 steps at Berlin⁴. In this study the outstanding result of Berlin IAAF Championship held on August 16th 2009 mathematically analyzing along with the world third best result of Beijing Olympics 2008. In the both competitions Bolt was the champion and the timings are 9.58 Sec. and 9.69 sec¹. Normally the record in 100m is breaking in hundredths of seconds, but it is a golden digits in the ever sprint sports by crossing an existing record with 0.11 Sec. In the 100m sprint running at maximal velocity is often taken as the most important part of the race. According to Summers² the most obvious general performance descriptor in the sprint is horizontal velocity. Ignoring the importance of the start, the athlete that can produce the greatest amount of horizontal velocity will be the most successful.

Methods

The purpose of this study was to perform an Analytical comparison of Usain Bolt’s Ever Best Timing Along With the Third Best Timing In 100m Sprint. Usain Bolt’s world best timing of 9.58 sec. is analyzing along with his own third best world timing of 9.69 sec. at Beijing Olympics. The stages of the race are divided into several phases: first, the reaction speed phase in the start; second, the acceleration phase; third, the maximal speed phase; fourth, the speed maintenance phase^{3,5}, and fifth the finishing stage. The total timing also divided in five different stages of each 20m and calculated the timing in Km/ hr. The data were analyzed each other and reached the final results and the conclusion. The procedure used for the

conversion of timing in m/ sec. to Km/ hr. is, Meter to Km= Meter/ 1000 and Sec. to Hr.= Sec./ 60*60. Speed= Distance/ Time.

Results and Discussion

Table I

Distance	Timing	Difference	Speed Km/ hr.	Timing	Difference	Speed Km/ hr.
	Berlin			Beijing		
20	2.89	2.89	24.94	2.87	2.87	25.08
40	4.64	1.75	41.14	4.65	1.78	40.45
60	6.31	1.67	43.11	6.32	1.67	43.13
80	7.92	1.61	44.72	7.96	1.64	43.90
100	9.58	1.66	43.37	9.69	1.73	41.62

The table I show the split timing of each 20m distance of 100m and the speed in Km/ Hr. It is easy to understand that the first 20m speed of Beijing is better than the Berlin. Here we can see that the delay of the start is balancing in the next 20m itself with a margin difference speed of 0.83 Km/ Hr. at Berlin. That means, the second 20m running speed of 40.45 Km/ Hr. improved with a speed of 41.14 Km/ Hr. at Berlin. The average speed of first 40m at Berlin was 33.04 Km/ hr. and the Beijing was 32.76 Km/ Hr. But we can see a shuffling change of improvement speed of 0.71 Km/ Hr. at Beijing in the third 20m (the race at Berlin raised 43.11 Km/ Hr. from 41.14 Km/ Hr. and at Beijing 43.13 Km/ Hr. from 40.45 Km/ Hr.). In the remaining stages of the race has the priority is only for the Berlin race. Fourth 20m of the race lead with an improved speed of 1.61 Km/ Hr. at Berlin than 0.77 Km/ Hr. at Beijing. Towards the final stages of the race Bolt fights himself and shows his capability by raising it with an amazing performance of 9.58 sec. at Berlin. From the table we can see the final 20m of Berlin he leads the race with a speed of 43.37 Km/ Hr. than the race of Beijing 41.62 Km/ Hr. It is only possible to Bolt because he is a "living legend". We know that the maximum speed can't maintain up to 100m for an athlete⁷. It's also taking place here; the final race was decreased with a speed of 1.35 Km/ Hr. at Berlin instead of 2.28 Km/ Hr. at Beijing. It shows that the Berlin race has no more change in final speed as compared to the race at Beijing.

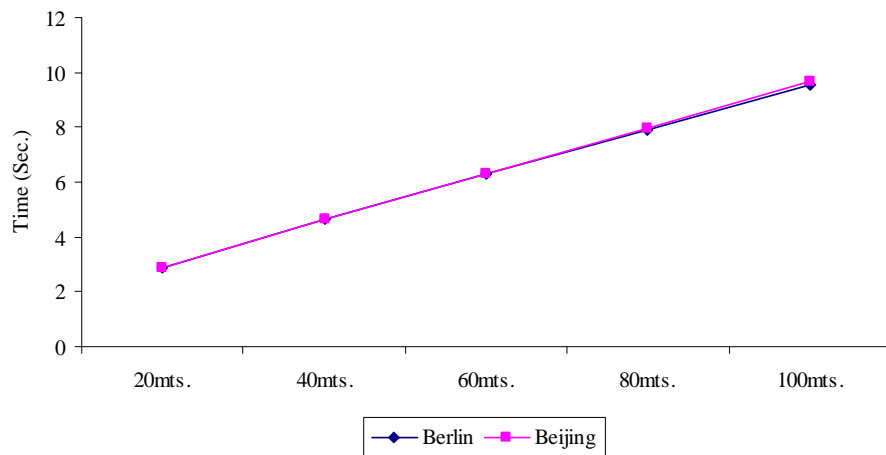


Figure 1: The split times for each 20mts. interval of Usain Bolt's race in Berlin and Beijing

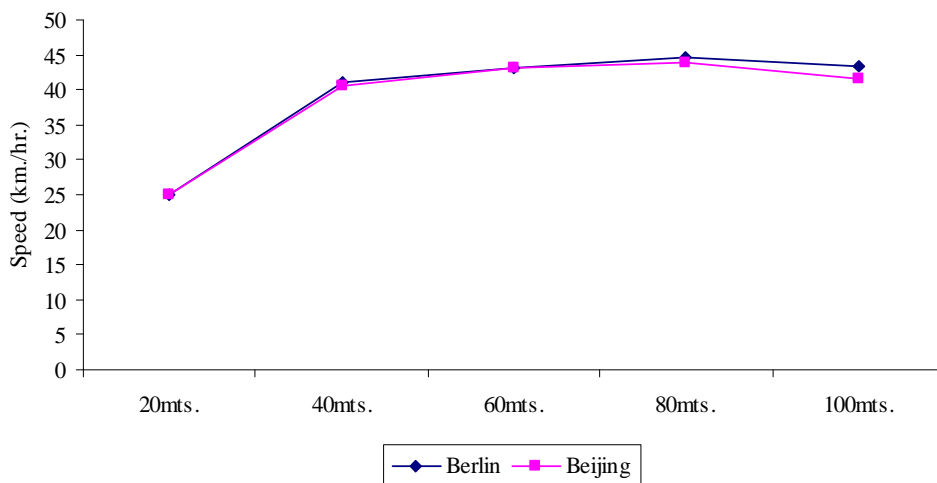


Figure 2: The speed (Km./ Hr.) for each 20m interval of Usain Bolt's race in Berlin and Beijing

The tailwind that supported at Berlin is 0.9 m/s and the condition of Beijing was 0 m/s, it is a plus point for the best result at Berlin. Bolt started his victory celebration from the last 80 m itself in the Beijing, so it is one of the major causes for the diminished performance while the finish at Beijing⁸. The average speed of the last 40m race of Berlin was 0.85 Km/ Hr. superior to the Beijing. After winning the Gold in Beijing, China, during the year 2008 Summer Olympics with a world record time of 9.69 seconds, Usain Bolt was the *fastest man alive*⁶. It was an epic performance since no man had ever broken 9.7 seconds in the 100 meters.

Over View

Bolt has said he is targeting 9.4 sec. in the 100 m, is it possible or not? ...a big question remains in front of us. According to Sander Smeets study pointing that 100m record will reach up to 9.36 sec. but his earlier study in 2008 said that it will be up to 9.51 sec. Don't expect that the record of 9.58 sec. to last too long through, unless Usain Bolt gets injured or something. He is a young and energetic man; we can expect his peak performance in 26 to 33 years. The years are remaining, who knows what will happen in future?

Conclusion

Berlin performance of Usain Bolt has been an ever shining result of 100m in the current world. The initial part of the race is lower speed than the Beijing, and it's repeated in the third stage also. In both races he reaches his peak level performance at 80m and it has maintained ever best in Berlin. Normally the finishing speed of an athlete is decreases than the peak speed, but in Berlin the variation is very low. The final stage speed difference of Berlin and the Beijing are 1.35 Km / Hr. and 2.28 Km / Hr. respectively. It is concluded that Usain Bolt saved 0.11 seconds off the record of Beijing, and run a blistering time of 9.58 seconds in Berlin.

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