

An analysis of the Olympic, Commonwealth, and Asian Games Best Performances Till 2010, of the Event Long Jump

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Abstract

This is an era of competition in all walks of life, more so in the field of sports. It is a matter of great pride for an athlete to participate, win and make records for his country. Each and every athlete tries his/her level best to reach that extent. There is myriad of modern field events, including the long jump, high jump, and triple jump; and the shot put, hammer throw, javelin throw, and discus throw. Several training exercises prospective are needed by the athletes to improve their reaction times, develop a sense of rhythm, and enhance their overall conditioning to ensure success in these field events. The present study was undertaken with the aim to compare the best performances of athletes of long jump event during various Commonwealth, Asian and Olympic competitions. The data related to the best performance of athletes for the event long jump was collected for Olympics, Commonwealth and Asian Games. The percent improvement in the Olympics, Commonwealth and Asian Games; for the event was calculated keeping the first performance as the base. The percentage difference between the best performances of Commonwealth and Asian Games for the selected events was calculated with their previous Olympic counterparts. A continuous improvement was observed in Olympic, Commonwealth and Asian Games in the event of Long Jump. A lag in the best performance of Long Jump event in Commonwealth and Asian Games was noticed, when compared with the preceding Olympic Games winning performance in the selected event.

Keywords: Long jump, Olympic Games, Commonwealth Games, Asian Games

Introduction

Various competitions have been organized in the past history of mankind and are still continuing in the present-day World in the form of major competitions like Olympic Games (OG), Commonwealth Games (CWG), and Asian Games (AG). These games are held at regular intervals. But of these, the Olympic Games are the oldest and biggest events on the earth. The Modern Olympic Games started from year 1896. Commonwealth Games are played between the countries which were ruled by Britain and were started from the year 1930. Asian Games were held for the first time in the year 1951 in New Delhi. In these games, only Asian countries participate. There is a difference in the performance of athletes in Olympic, Commonwealth and Asian Games (Gupta, R.K & Bhatnagar, S. 1987).

Different researchers have attempted to predict future performances by deriving and applying different mathematical statistical models based on past performances of athletics. The human limits in the basic abilities like how much faster, farther or higher the athletes can propel themselves, is viewed with great interest all over the World (Cerretelli, P. & Radovani, P. 1960).

Often predictions are purely speculative and are not based upon any substantial evidence, rather they are based on the belief that records are made to be broken and that performances must continue to improve over time. The accessibility of data in the form of results from Olympic Games, World Records and World best performances during specific year allows the assessment of performances in any number of events (Kuper, G.H., and Sterken, E. 2002). From these analyses, changes in

performance over time can be observed and predictions of future performance can be made utilizing the process of mathematical extrapolation (Wallechinsky, D. 1996).

The performance capacities of the athletes are known to be influenced by their morphological status. These diverse factors may probably play a role in shaping the destiny of athletes and thus contribute to the varying degrees of performances by athletes from different countries (Williams, C. 2011).

The poor performance of Indian athletes in the various International level competitions like Olympic, Commonwealth and Asian Games is a matter of great concern to the coaches and scientists (Malhotra, M.S, Gupta, R.K. 1984). This has attracted the attention of sports-scientists in particular and all those belonging to the sports in general to investigate the reasons of our dismayed performance from various angles (Hopkins, W. 2000).

The various facts of the problem, which need to be investigated include the body potential of our athletes, the analysis of the training practices employed for the training of the athletes, the psychosociological makeup of the athletes, the nutritional status etc. Efforts have been directed in some advanced countries towards these explorations of various factors influencing the performance of athletes from the different perspectives (Malhotra et al., 1972). Another important area of sports sciences research which has made its impact in influencing the performance of athletes is their proper nutritional intake according to the needs of the physical activity, in which the athlete is engaged, can result in significant improvement in the performance of the athlete (Banister, E.& Calvert, T. 1980).

Still certain important areas, which include biomechanics, training methods etc. have not been paid the due attention, which they need. Training the athlete is a matter of constructing exercise programmed to develop what the athlete will need for his or her special event. As various sports require different energy systems, the trainer should prepare the programs accordingly (Hopkins, W. 2000). Also work out the efficiency of the training schedules and adopt the best. It is unfortunate that reports pertaining to this are not available on Indian/Asian athletes. Most training programmers used by coaches of developing countries like India are from amongst those that have been developed by various track and field coaches of advanced countries to suit the need of their own athletes.

There is thus a great scope of future research exploration in the field of training methods. However, till the time systematic efforts are begun in this direction, there is a dire need to give direction to this type of research by revealing the quantitative differences in the performance abilities of Indian athletes from those of Olympic, Commonwealth, Asian and other International Athletes. For this, first effort can be made by comparing the performance records of Asian and Commonwealth Games champions with those of Olympic Games champions and analyze the results in physiological terms. Some attempts have been made in the past in this direction

in some track events (Sachdeva, A. and Verma S.K 1994, 1996).

A comparison of best performances by athletes in Olympic, Commonwealth and Asian Games since their inception, would give an insight into the trends of best performances and impending World records.

Aim of the Study

The present study was undertaken with the aim to compare the best performances of athletes of the event long jump during various Commonwealth, Asian and Olympic Games competitions.

Methodology

The data related to the best performance of athletes for the event of Long Jump was collected for Olympic Games, Commonwealth Games and Asian Games. The data were collected using the internet and related official record manuals. The data for Olympic Games was collected from the year 1896 Athens (Greece) to 2008 Beijing (China) Olympic Games. The data related to best performances of athletes for Commonwealth Games was collected from the year 1930 (IX Commonwealth Games) to 2010 (XIX Commonwealth Games). The best performances related data for the Asian Games was collected from the year 1951 to the year 2010.

Analysis of Data

The percent improvement in the Olympics, Commonwealth and Asian Games; for the event was calculated keeping the first performance as the base. The percentage difference between the best performances of Commonwealth and Asian Games for the selected event was calculated with their preceding Olympic Games counterparts.

Results

The best performance (male) in Long Jump event at 1896 Olympic Games was 6.35m, demonstrated by an American athlete. The Long Jump ability has shown 26.92 percent improvement in 40 years and thereafter till 2010 there is further improvement to 8.34m (i.e. 31.33percent). The Olympic best performance made in 1968 was 8.90m (i.e. 40.15 Percent improvement, which is a record till date. The best performance in Long Jump event at 1930 Commonwealth Games was 7.20m, which is 6.85 percent lesser than that observed in 1928 Olympic Games. The net improvement in Commonwealth Games Long Jumping performance is 15.27 percent up to the year 2010 as compared to the 1930 level.

The Best Asian male performance in Long Jump event in 1951 has been observed to be 7.14m demonstrated by a Japanese athlete, which is 8.69 percent lesser than that observed in the year 1948 Olympic Games. The net improvement in Asian Games Long Jumping performance was 13.58 percent up to the year 2010 as compared to the 1951 level. Asian best performance in male Long Jumpers observed in the year 1994 was 8.34m (i.e.16.80 percent improvement).

In females, the best performance in Long Jump event at 1948 Olympic Games was 5.65m, demonstrated by a Hungarian athlete. Thereafter, till 2010 there is further improvement of 7.04m (i.e. 24.60

Percent). The Olympic best performance made in 1992 was 7.14m (i.e. 26.37 Percent improvement).

The best performance in Long Jump event (females) at 1934 Commonwealth Games was 5.47m, the net improvement in Common wealth performance increased by 18.82 percent up to the year 2010 as compared to the 1934 level. The best Asian female performance in Long Jump event (females) at 1951

has been observed to be 5.91m demonstrated by the Japanese athlete which is 4.60 percent lesser than that observed in the year 1948 Olympic Games. The net improvement in Asian Games Long Jumping performance was 10.49 percent up to the year 2010 as compared to the 1951 level. Asian best performance in females observed in the year 1998 was 6.89m (i.e.16.58 percent improvement).

Table 1: Comparison of the Best Performances of athletes in the event of Long Jump (in meter) in various Olympic, Common wealth and Asian Games

Year	Olympic Games (OG)				Common wealth Games (CWG)				Asian Games (AG)			
	Male		Female		Male		Female		Male		Female	
	Best Performance (m)	% Improvement	Best Performance (m)	% Improvement	Best Performance (m)	% Improvement	Best Performance (m)	% Improvement	Best Performance (m)	% Improvement	Best Performance (m)	% Improvement
1896	6.35 (USA)	-	-	-	-	-	-	-	-	-	-	-
1900	7.18 (USA)	13.07	-	-	-	-	-	-	-	-	-	-
1904	7.34 (USA)	15.59	-	-	-	-	-	-	-	-	-	-
1908	7.48 (USA)	17.79	-	-	-	-	-	-	-	-	-	-
1912	7.60 (USA)	19.68	-	-	-	-	-	-	-	-	-	-
1920	7.5 (SWE)	12.59	-	-	-	-	-	-	-	-	-	-
1924	7.44 (USA)	17.16	-	-	-	-	-	-	-	-	-	-
1928	7.73 (USA)	21.73	-	-	-	-	-	-	-	-	-	-
1930	-	-	-	-	7.20 (CAN)	-	-	-	-	-	-	-
1932	7.64 (USA)	20.31	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	7.17 (CAN)	-0.41	5.47 (ENG)	-	-	-	-	-
1936	8.06 (USA)	26.92	-	-	-	-	-	-	-	-	-	-
1938	-	-	-	-	7.43 (CAN)	3.19	5.80 (AUS)	6.03	-	-	-	-
1948	7.82 (USA)	23.14	5.65 (HUN)	-	-	-	-	-	-	-	-	-
1950	-	-	-	-	7.31 (SAF)	1.52	5.91 (NZL)	8.04	-	-	-	-
1951	-	-	-	-	-	-	-	-	7.14 (JPN)	-	5.91 (JPN)	-
1952	7.57 (USA)	19.21	6.24 (NZL)	9.66	-	-	-	-	-	-	-	-
1954	-	-	-	-	7.54 (ENG)	4.72	6.08 (NZL)	11.15	7.02 (JPN)	-1.68	5.68 (JPN)	-3.89
1956	7.83 (USA)	23.30	6.35 (POL)	11.59	-	-	-	-	-	-	-	-
1958	-	-	-	-	7.47 (JPN)	3.75	6.02 (ENG)	10.05	7.54 (KOR)	5.60	5.64 (PHI)	-4.46
1960	8.12 (USA)	27.87	6.37 (SOV)	11.95	-	-	-	-	-	-	-	-
1962	-	-	-	-	8.05 (GHA)	11.80	6.27 (AUS)	14.62	7.41 (JPN)	3.78	5.75 (JPN)	-2.70

1964	8.07 (GBR)	27 .08	6.76 (GBR)	18.8 0	-	-	-	-	-	-	-	-
1966	-	-	-	-	7.99 (WAL)	10.97	6.36 (ENG)	16.2 7	7.48 (JPN)	4.76	5.9S (CHN)	0.67
1968	8.90 (USA)	40.1 5	6.82 (ROM)	19.85	-	-	-	-	-	-	-	-
1970	-	-	-	-	8.06 (WAL)	11.94	6.73 (ENG)	0.23	7.62 (JPN)	6.72	6.02 (JPN)	1.86
1972	8.24 (USA)	29 .76	6.78 (GER)	19.15	-	-	-	-	-	-	-	-
1974	-	-	-	-	7.94 (ENG)	10.27	6.46 (GHA)	18.09	8.07 (IND)	13,0 2	6.31 (CHN)	6.78
1976	8.35 (USA)	31.4 9	6.72 (USA)	18.1 0	-	-	-	-	-	-	-	-
1978	-	-	-	-	8.06 (ENG)	11.94	6.59 (ENG)	20.47	7.85 (IND)	9.94	6.28 (CHN)	6.26
1980	8.54 (GBR)	34.4 8	7.06 (SOV)	24.07	-	-	-	-	-	-	-	-
1982	-	-	-	-	8.13 (AUS)	12.91	6.91(B AH)	26.32	7.94 (KOR)	11.2 0	6.41 (CHN)	8.46
1984	8.54 (USA)	34.4 8	6.96 (ROM)	22.3 1	-	-	-	-	-	-	-	-
1986	-	-	-	-	8.08 (AUS)	12.22	6.43 (ENG)	17.5 5	7.94 (KOR)	11.2 0	6.37 (CHN)	7.78
1988	8.72 (USA)	37 .32	7.04 (USA)	19.74	-	-	-	-	-	-	-	-
1990	-	-	-	-	8.39 (NGR)	16.52	6.78 (AUS)	23.9 4	8.04 (CHN)	12.6 0	6.69 (CHN)	13.19
1992	8.67 (USA)	36.5 3	7.14 (GER)	26.37	-	-	-	-	-	-	-	-
1994	-	-	-	-	8.05 (NGR)	11.80	6.82 (AUS)	24.6 8	8.34 (CHN)	16.8 0	6.91 (CHN)	16.92
1996	8.50 (USA)	33.8 5	7.12 (NGR)	26.02	-	-	-	-	-	-	-	-
1998	-	-	-	-	8.22 (AUS)	14.16	6.63 (ENG)	21.2 0	8.0 (JPN)	13.4 4	6.89 (CHN)	16.58
2000	8.55 (CUB)	34 .64	6.99 (GER)	23.72	-	-	-	-	-	-	-	-
2002	-	-	-	-	8.02 (ENG)	11.38	6.70 (JAM)	22.4 8	8.14 (SAR)	14.0 0	6.53 (IND)	10.49
2004	8.59 (USA)	35 .27	7.07 (RUS)	25.13	-	-	-	-	-	-	-	-
2006	-	-	-	-	8.20 (GHA)	13.88	6.97 (AUS)	27.4 2	8.02 (SAR)	12.3 2	6.81 (JPN)	15.22
2008	8.34 (PAN)	31.3 3	7.04 (BRA)	24.60	-	-	-	-	-	-	-	-
2010	-	-	-	-	8.30 (AUS)	15.27	6.50 (CAN)	18.8 2	8.11 (KOR)	13.5 8	6.53 (KOR)	10.49

Where, m = meters; AUS=Australia;BAH=Bahrain; BRA=Brazil; CAN=Canada; CHN=China; CUB=Cuba; ENG=England; GBR=Great Britain; GER=Germany; GHA=Ghana; HUN=Hungary; IND=India; JPN=Japan; KOR=Korea; NGR=Nigeria; NZL=New Zealand; PAN= Panama; PHI=Philippines; POL=Poland; ROM=Rome; RUS=Russia; SAF= South Africa; SOV=Savarin Nations; SWE=Sweden; USA=United states of America;; WAL=Wales

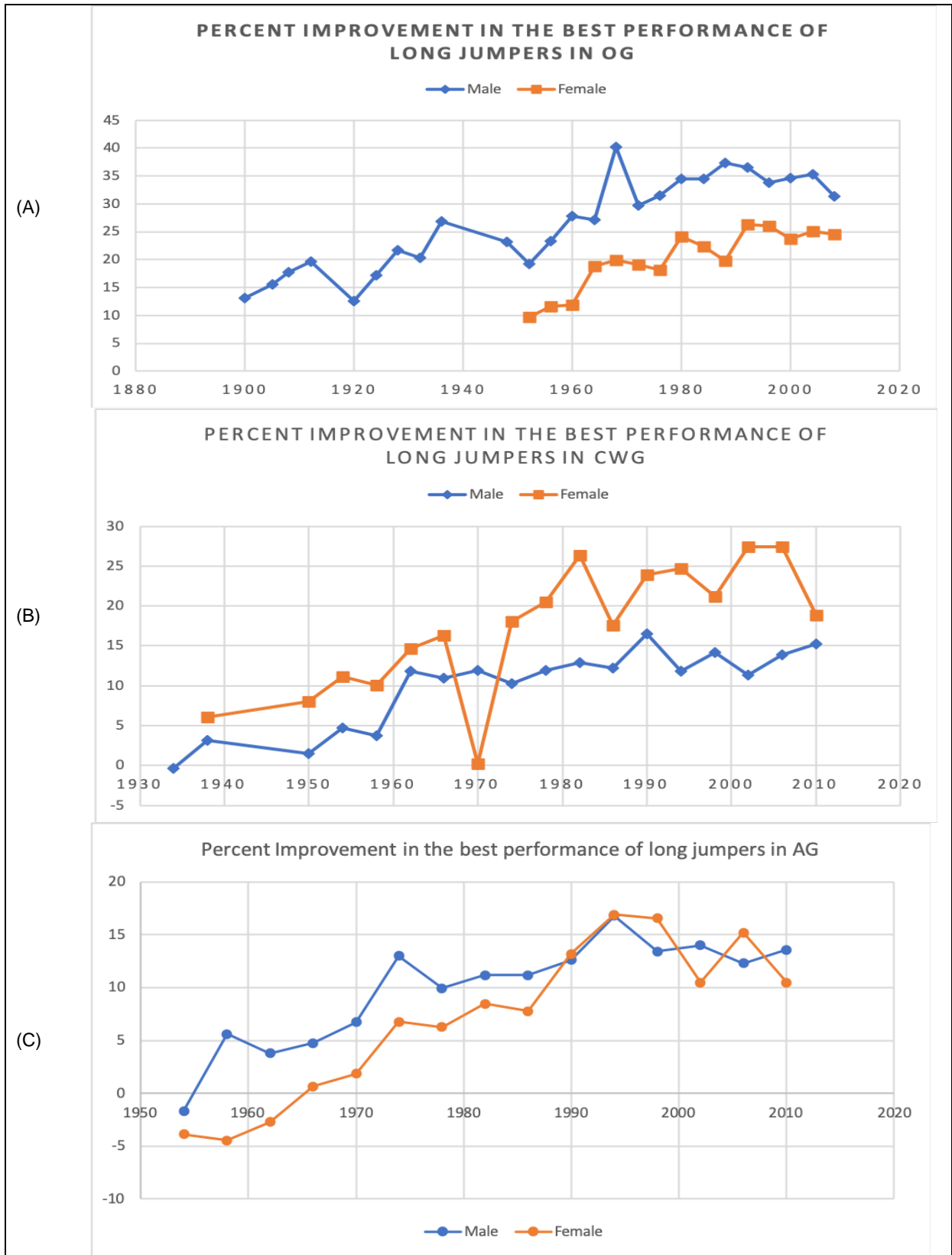


Figure1: Percent improvement in the best performances of Long Jumpers over the years in (A) OG, (B) CWG and (C) AG

Years	Best Performances (m)			Difference b/w best performance of		% lag in the best performance of	
	OG	CWG	OG	OG and CWG	OG and AG	CWG	AG
1928	7.73	-	-	-	-	-	-
1930	-	7.2	-	0.53	-	6.85	-
1932	7.64	-	-	-	-	-	-
1934	-	7.17	-	0.47	-	6.15	-
1936	8.06	-	-	-	-	-	-
1938	-	7.43	-	0.63	-	7.81	-
1948	7.82	-	-	-	-	-	-
1950	-	7.31	-	0.51	-	6.52	-
1951	-	-	7.14	-	0.68	-	8.69
1952	7.57	-	-	-	-	-	-
1954	-	7.54	7.02	0.03	0.55	0.39	7.26
1956	7.83	-	-	-	-	-	-
1958	-	7.47	7.54	0.36	0.29	4.59	3.7
1960	8.12	-	-	-	-	--	-
1962	-	8.05	7.41	0.07	0.71	0.86	8.74
1964	8.07	-	-	-	-	-	-
1966	-	7.99	7.48	0.08	0.59	0.99	7.31
1968	8.9	-	-	-	-	-	-
1970	-	8.06	7.62	0.84	1.28	9.43	14.38
1972	8.24	-	-	-	-	-	-
1974	-	7.94	8.07	0.30	0.17	3.64	2.06
1976	8.35	-	-	-	-	-	-
1978	-	8.06	7.85	0.29	0.50	3.47	0.05
1980	8.54	-	-	-	-	-	-
1982	-	8.13	7.94	0.41	0.60	4.80	7.02
1984	8.54	-	-	-	-	-	-
1986	-	8.08	7.94	0.46	0.60	5.38	7.02
1988	8.72	-	-	-	-	-	-
1990	-	8.39	8.04	0.33	0.68	3.78	7.79
1992	8.67	-	-	-	-	-	-
1994	-	8.05	8.34	0.62	0.33	7.15	3.8
1996	8.5	-	-	-	-	-	-
1998	-	8.22	8.1	0.28	0.40	3.29	4.70
2000	8.55	-	-	-	-	-	-
2002	-	8.02	8.14	0.53	0.41	6.19	4.79
2004	8.59	-	-	-	-	-	-
2006	-	8.2	8.02	0.39	0.57	4.54	6.63
2008	8.34	-	-	-	-	-	-
2010	-	8.3	8.11	0.04	0.23	0.47	2.75

Years	Best Performances (m)			Difference b/w best performances of		% lag in best performances of	
	OG	CWG	AG	OG and CWG	OG and AG	CWG	AG
1948	5.65	-	-	-	-	-	-
1950	-	5.91	-	-0.26	-	-4.60	-
1951	-	-	5.91	-	-0.26	-	-4.60
1952	6.24	-	-	-	-	-	-
1954	-	6.08	5.68	0.16	0.56	2.56	8.97
1956	6.35	-	-	-	-	-	-
1958	-	6.02	5.64	0.33	0.71	5.20	11.18
1960	6.37	-	-	-	-	-	-
1962	-	6.27	5.75	0.10	0.62	1.57	9.73
1964	6.76	-	-	-	-	-	-
1966	-	6.36	5.95	0.40	0.81	5.92	11.98

1968	6.82	-	-	-	-	-	-
1970	-	6.73	6.02	0.11	0.80	1.61	11.73
1972	6.78	-	--	-	-	-	-
1974	-	6.46	6.31	0.32	0.47	4.72	6.93
1976	6.72	-	-	-	--	-	-
1978	-	6.59	6.28	0.13	0.44	1.93	6.55
1980	7.06	--	-	-	-	-	-
1982	-	6.91	6.41	0.15	0.64	2.12	9.07
1984	6.96	-	-	-	-	-	-
1986	-	6.43	6.37	0.53	0.59	7.61	8.48
1988	7.04	-	-	-	-	-	-
1990	-	6.78	6.69	0.26	0.35	3.69	4.97
1992	7.14	-	-	-	-	-	-
1994	-	6.82	6.91	0.32	0.23	4.48	3.22
1996	7.12	-	-	-	-	-	-
1998	-	6.63	6.89	0.49	0.23	6.88	3.23
2000	6.99	-	-	-	-	-	-
2002	-	6.70	6.53	0.29	0.46	4.15	6.58
2004	7.07	-	-	-	-	-	-
2006	-	6.97	6.81	0.1	0.26	1.41	3.68
2008	7.04	-	-	-	-	-	-
2010	-	6.50	6.53	0.54	0.51	7.67	7.24

Discussion

The present study has taken into consideration the best performances of athletes in various Olympic, Commonwealth and Asian Games since their inception. The best performances of the players belonging to the event of Long Jump have been taken into consideration for analysis.

The analysis of trends in the event of long jump revealed drastic improvements in the best performances till 1968 in Olympic, Commonwealth as well as Asian Games (Kang, H.S. 1991, Kuper, G.H., Sterken, E. 2002). The progression of improvement slowed down in the next two decades. Recent times have seen again a progression of improvement in these events (Hopkins, W. 2000, Tan & Lyatskaya, S. 2011 and Wallechinsky, D. 1996).

The continuous and remarkable improvement in performances could be attributed to the rapid development in a number of interacting sports scientific (Hopkins, W. 2000), ontogenetic (lifespan) and pharmacological factors, such as the use of more efficient running techniques, a biomechanical construct, improved training programs (Astrand, P.O. 1952 and 1964). Moreover, the population of athletes enlarged due to the increased participation by more nations from which high-performance athletes were drawn. This resulted in an increased sample from the human gene pool, a genetic construct, improved talent identification programs designed and implemented by national sporting organizations and sports institutes that selected and developed high performance athletes.

Over a period of time, changes in human physiology (Bouchard et al., 1999), such as the recent ontogenetic trends of increasing height and weight in Australia has also resulted in better performances by athletes (Athletic Australia, 2004).

The use of performance enhancing drugs legal or illegal, especially androgenic-anabolic steroids and human growth hormone, which have a masculinizing effect on women or the use of

nutraceuticals (functional foods) affected performances of athletes largely (Heazlewood, I. and Lackey, G. 1996).

In the present study, Olympic best performances of the Long Jump event have been better than Asian and Commonwealth Games performances. However, the percent lag has shown a constant decline over a period of time. The differences in the performances of Asian Games long jumpers as compared to their Olympic Games counterparts may therefore be ascribed to the genetic makeup of muscle fibers composition of athletes, the overall training program of building up of strength may also be playing a role, because of supporting system like muscles, tendons and ligaments, when the strength training is in progress, any imbalance of training effects on the strength of muscles and the strength of supporting system can lead not only to poor performance, but also to various types of injuries (Williams, C. 2011).

Improvements in Asian Games best performances over the years are probably due to the right type of selection of athletes. With time, there have been improvements not only in the scientific formulations of training program, but also in the selection of right type of athletes for different sports which resulted in better performance with the passage of time (Edwards, D. and Hopkins, W. 1979). However, the relatively reduced performance of Asian Games Long Jumpers as compared to Olympic Game Long Jumpers may be due to the genetic construct of the athletes and other environmental factors (Gupta, R. K and Bhatnagar, S. 1984).

Males have performed better than females. Nevertheless; the differences in the initial years of these competitions were more. In the recent times, the differences between male and female best performances have declined consistently (Whipp, B.J., Ward, S.A. 1992). The progression of women's records moving at a faster rate than men's records could be because there were fewer women who were

competing and fewer elite competitions were held for women in the 20th century. This left more room for improvement for women athletes (Hodkings, J. and Stubic, V. 1968)

In 1968 and 1988, the peak performances may also have been caused by the increased use of performance-enhancing drugs (Lippi, G. 2008). As in the present study it has been found that the curves slowed down in the 1970s in both men and women, at the time that anti-doping testing was initially introduced by the International Olympic Committee. The 1988 Olympics had 11 world records set in track and field, some of which still stand. The peak came to an end after stricter doping laws were introduced (Wallechinsky, D. 1996).

Another feature of the present study indicates the impact of I and II World Wars on the athletic performance records. The performances in the Olympic Games in various events immediately after the World Wars have been observed to either decline or do not show any improvement. Obviously, this is due to disturbing conditions which prevailed in many countries, which might have made an impact on the nutrition of the population, training practices and many other unknown factors (Kuper, G.H., Sterken, E. 2002 and Wallechinsky, D. 1996).

However, 2010 commonwealth games held in Delhi, India has seen emergence of great field event female athletes from our country providing hopes of better achievements in forthcoming National and International competitions. Endeavors in the light of all scientific advancements, proper training, higher motivation and stronger will, the targets do not seem unachievable for our national athletes.

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