



Technical Considerations Regarding the Use of Arms in the Phase of Flight over the Bar in the High Jump

KEYWORDS

athletes, high jump, technique

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ABSTRACT *The research is part of the study of sport performance. It is also a technical study aiming the working arms during the flight over the bar. The measurements were made after viewing the competitions of the best high jumpers. We used as a research method the case study, observation and mathematics. Through this study we try to determine the percentage of use of a certain jump style (arms work during the flight over the bar) of all registered high performance athletes. We propose that we can differentiate the style of high jump after the work of arms during the flight over the bar (0, 1, or 2 arms). The results we hope to help coaches, especially those dealing with children and youth, to implement the most efficient techniques in high jump.*

INTRODUCTION

An overview of the world's top athletes in the year of Olympic Games, is welcome, as it helps to detachment of certain essential elements in the selection and preparation of our athletes. In the present study it was envisaged high jump discipline. The effort provided by the high jumpers, is a type of anaerobic alactacid. The small phosphocreatine (PC) deposit is that who supplies power for muscles for 7 to maximum 10 seconds [Bompa, T.O., 2001]. The technique used from the high jumpers is floppy, but the style used when passing the bar varies from one athlete to another. For an efficient beating and separation on high jump, should be considered the following aspects: "passive element – straightening of the shoulders, shifting of the horizontal speed in the vertical speed through blockage; active element – separation and extent, extensor muscle contraction; element of advancing – engaging the leg attack and arms in the movement towards vertical" [Wolfgang, K., 1993].

METHODS AND SUBJECTS

As research methods we used the case study, observation and mathematics. We have proposed in the present paper to record based on filming competitions, how to solve the athletes crossing the bar, focusing on working arms. The result of the jump (success or failure) it depends on how the athlete passing over the bar body segments, the arms being essential in this aspect. As a general definition, we can say that the performance is "the result of human action superior to known results" [ifrea, C., 2002].

The paper has set as purpose determination the share of a given usage style high jump (the work of arms during the flight over the bar) of the total registered athletes. In this regard we recorded peak performance, date of birth for classification over the generations and action of the arms during the flight over the bar.

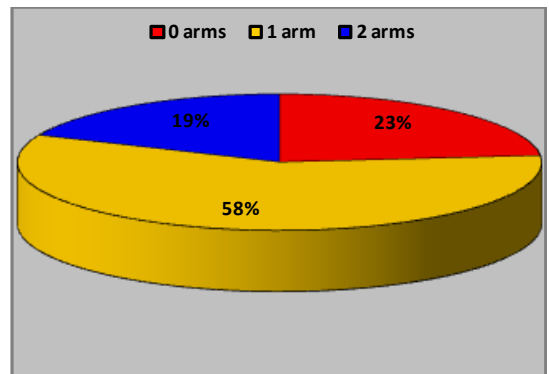
They were viewed 160 high jumps. [www.youtube.com], 81 women and 79 de men. Were tracked mostly jumpers in the top 100 all time [www.iaaf.org], resulting 63 recording of women and 72 for men. We note that the performance of the top 100 all time currently range between 2.09 m and 1.98 m in women and 2.45 m and 2.34 m in men.

RESULTS

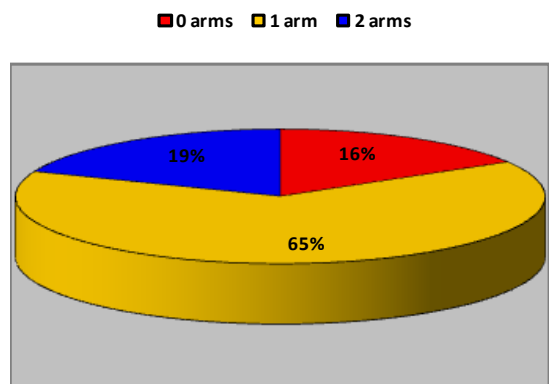
After the data processing have resulted the following tables and graphs:

Table 1 Using the arms during the flight over the bar

Sex	0 arms (%)	1 arm (%)	2 arms (%)	Total
Women	19 (23,45)	47 (58,02)	15 (18,51)	81
Men	13 (16,45)	51 (64,55)	15 (18,98)	79
Total	32	98	30	160



Graph 1. Share of styles in women



Graph 2. Share of styles in men

Table 2. Using the arms during the flight over the bar on the decades after the years of birth in women

Women	0 arms (%)*	1 arm (%)*	2 arms (%)*	Total (%)
< 1961	2 (33,33) (10,52)	3 (50) (2,12)	1 (16,66) (6,66)	6 (7,40)
1961-1970	7 (38,88) (36,84)	8 (44,44) (17,02)	3 (16,66) (20)	18 (22,22)
1971-1980	5 (27,77) (26,31)	10 (55,55) (21,27)	3 (16,66) (20)	18 (22,22)
1981-1990	4 (14,81) (21,05)	17 (62,96) (36,17)	6 (22,22) (40)	27 (33,33)
>1991	1 (8,33) (5,26)	9 (75) (19,14)	2 (16,66) (13,33)	12 (14,81)
Total (%)	19 (23,45)	47 (58,02)	15 (18,51)	81

Table 3. Using the arms during the flight over the bar on the decades after the years of birth in men

Women	0 arms (%)*	1 arm (%)*	2 arms (%)*	Total (%)
< 1961	2 (50) (15,38)	1 (25) (1,96)	1 (25) (6,66)	4 (5,06)
1961-1970	1 (4,76) (7,69)	14 (66,66) (27,45)	6 (28,57) (40)	21 (26,58)
1971-1980	3 (16,66) (23,07)	12 (66,66) (23,52)	3 (16,66) (20)	18 (22,78)
1981-1990	5 (17,85) (38,46)	18 (64,28) (35,29)	5 (17,85) (33,33)	28 (35,44)
>1991	2 (25) (15,38)	6 (75) (11,76)	0 (0) (0)	8 (10,12)
Total (%)	13 (16,45)	51 (64,55)	15 (18,98)	79

* The first percentage represent the share of style within the same generation, and the second represent the share of style within the same style, of all athletes had in research.

DISCUSSION

0 arms style. We have 19 entries in women and 13 in men (Table 3). Comparing the percentage style of all cases, we find that women (23.45%) use this style more than men (16.45%). Regarding generations of athletes this style has the largest share among women born between 1961-1970 (36.84%) (Table 4) and between 1981-1990 in men (38.46%) (Table 5). Decade with the largest share of all cases is lower in women 1961-1970 (38.88%) than in men < 1961 (50%).

1 arm style. We have 47 entries in women and 51 in men (Table 3). Comparing the percentage style of all cases, we find that women (58.02%) use less this style than men (64.55%). Regarding generations of athletes this style has the largest share among those born between 1981-1990 both in women (36.17%) (Table 4) and men (35.29%) (Table 5). Decade with the largest share of all cases is the same and equal to both women and men > 1991 (75%).

2 arms style. We have 15 entries in women and 15 in men (Table 3). Comparing the percentage style of all cases, we find that women have 18.51% and men 18.98%. Regarding generations of athletes this style has the largest share among women born between 1981-1990 (40%) (Table 4) and between 1961-1970 in men (40%) (Table 5). Decade with the largest share of all cases is lower in women 1981-1990 (22.22%) than in men 1961-1970 (28.57%).

CONCLUSIONS

- Style most used in both men and women is he who uses only one arm over the bar .
- Share of style used is close to that value both men and women
- High performance can be used for all styles

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