

NSA PHOTOSEQUENCE #32 — POLE VAULT: SERGEY BUBKA

By Helmar Hommel (© Hommel AVS 1994), Commentary on Photosequence 32 by Maurice Houvion

Maurice Houvion has been French national pole vault coach since 1966 and is based at the INSEP centre in Paris. Among other men (and now women ...) Houvion coaches are Jean Galfione (personal best of 5.94m), Kory Tarpenning (p.b. of 5.89m) and Gerald Baudouin (pb. of 5.80m). Houvion is a former French record holder for pole vault.

(Translated from the original French by Sarah Thomas)

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Sergey BUBKA (UKR)

The sequence shows his first clearance of 6.00m at the IVth IAAF World Championships in Athletics, Stuttgart 1993, which won the gold medal.

Accomplishments: 1988 Olympic Champion; 1983, 1987, 1991 and 1993 World Champion; 1985, 1987 and 1991 World Indoor Champion; 1986 European Champion. Has held 16 pole vault World Records and 18 World Indoor Records, was first athlete to clear 6.00m.

- Born: 4 December 1963
- Height: 1.83m
- Weight: 80kg
- Best mark: 6.14m (1994, World Record)

Progression:

- 1975 (12) 2.70m
- 1976 (13) 3.50m
- 1977 (14) 3.60m
- 1978 (15) 4.40m
- 1979 (16) 4.80m
- 1980 (17) 5.10m
- 1981 (18) 5.40m
- 1982 (19) 5.55m
- 1983 (20) 5.72m
- 1984 (21) 5.94m

- 1985 (22) 6.00m
- 1986 (23) 6.01m
- 1987 (24) 6.03m
- 1988 (25) 6.06m
- 1989 (26) 6.00m / 6.03m (i)
- 1990 (27) 5.90m / 6.05m (i)
- 1991 (28) 6.10m / 6.12m (i)
- 1992 (29) 6.13m
- 1993 (30) 6.05m / 6.15m (i)
- 1994 (31) 6.14m

Approach

Although there are only a few photos of Sergey Bubka's run-up (picture 1), I will nevertheless make some comments on it, as it represents one of his strong points.

Bubka's balance during the run-up is remarkable, and his posture is already well composed right at the head of the runway. He sets off holding the pole at a vertical, gradually bringing it down during the run-up, thereby reducing to the full the burden of its weight. This method, he says, means that he actually starts planting the pole from the beginning of the run-up.

Approach - plant - take-off (2-3-4-5-6-7-8-9-10-11-12-13-14-15)

This sequence is an essential phase in determining Bubka's successful clearance of 6m in the last two strides, his arm action consists of raising the pole directly above his head, to create the largest possible angle between the pole and the ground, still keeping it in line with the approach axis. This positioning of the pole is ideal for concentrating in it all the energy developed in the run-up.

His hands are held relatively close together, but the shoulder axis at the time of take-off is perfectly perpendicular to the approach axis. This ensures him a well composed, forward take-off, which allows his energy to be optimally transferred without, like other vaulters, having to push off hard with his lower arm.

The take-off point (13-14-15) is located virtually vertically below his rear hand. The knee of his free leg (15-16) drives forwards and upwards, thereby increasing the effectiveness of the take-off and the solidity of the pelvis region.

Leg swing (16-17-18-19-20)

The leg swing initiates the rock-back and helps to increase the bend of the pole.

His forward-upward take-off means that Sergey Bubka's swing links on automatically. His swing consists of a very wide sweep of the take-off leg, while

his free knee remains fixed. At the same time, he moves his shoulder axis away from the pole through a voluntary movement and extends his lower arm (18-19-20).

Rock-back (21 -22-23-24) and extension (25-26-27-28)

Bubka then rotates about the shoulder axis, pulling his legs up to accelerate the rotation, so bringing him into a 'bunched up' position, from which he then vigorously extends his legs and hips in keeping with 'pole pace'. During this extension phase, Bubka maintains a remarkable balance with his pole.

Turn (29-30-31)

His body is vertical, well composed, and the turn is carried out so that his chest faces the bar during clearance. Bubka's performance is equally remarkable in this phase of the vault in which he succeeds in staying perfectly aligned with the pole. This technique explains why his 'catapulting' is so effective.

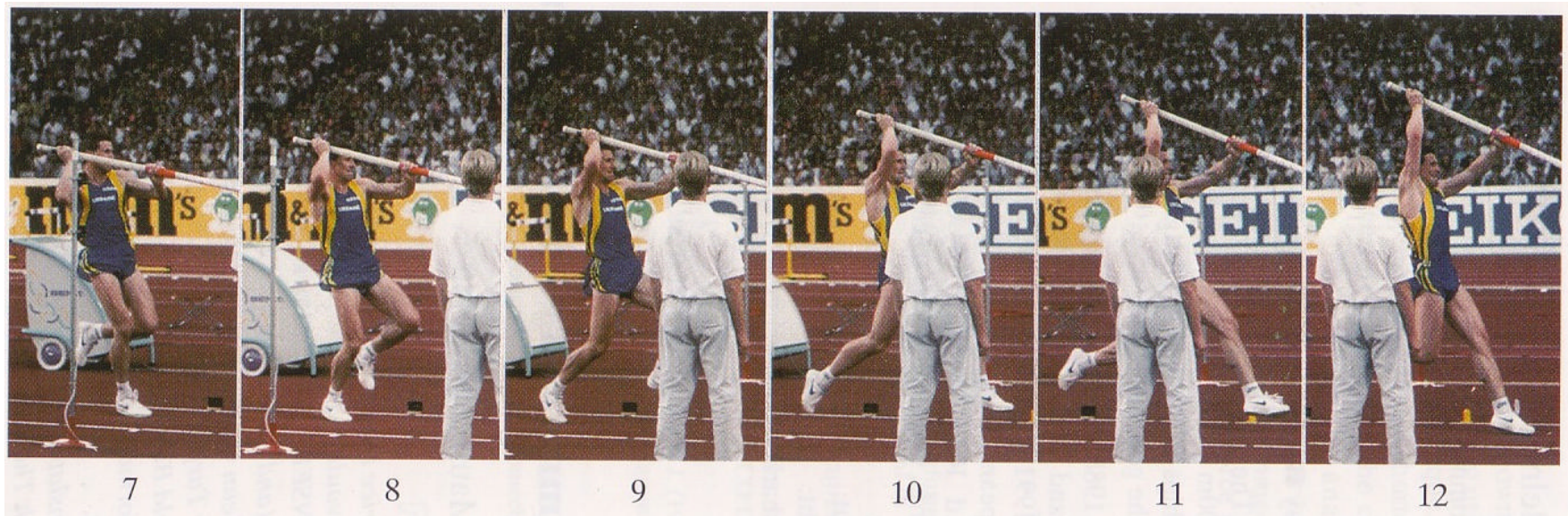
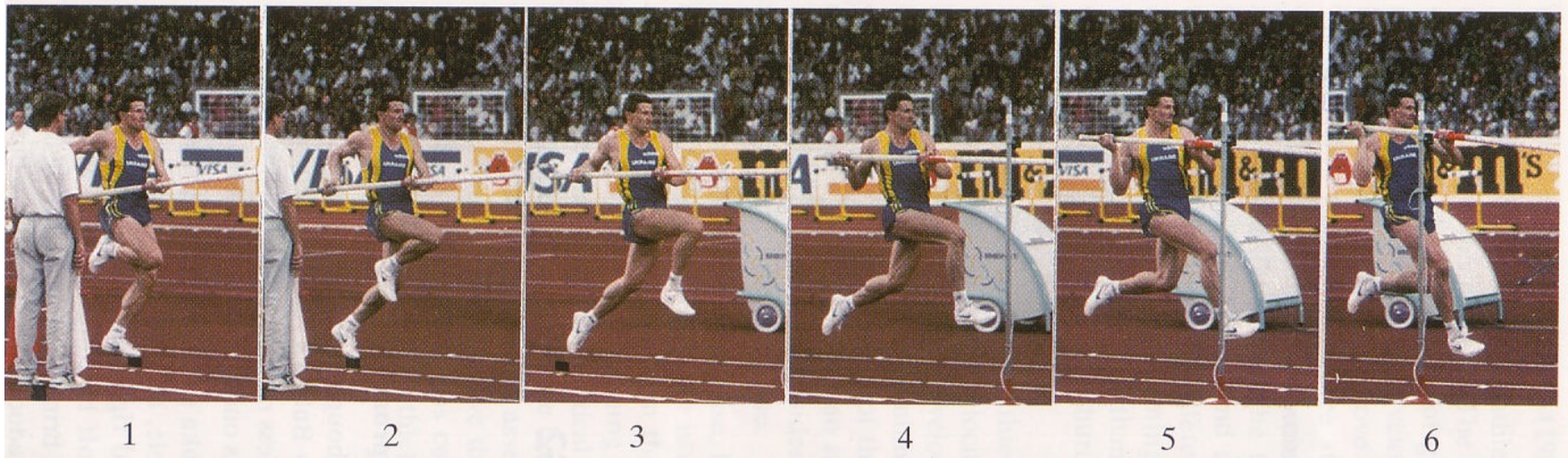
Not only did Bubka develop a great deal of energy during the run-up, the take-off and the swing, but his ideal positioning allows him to recuperate most of this energy to perform an excellent vault.

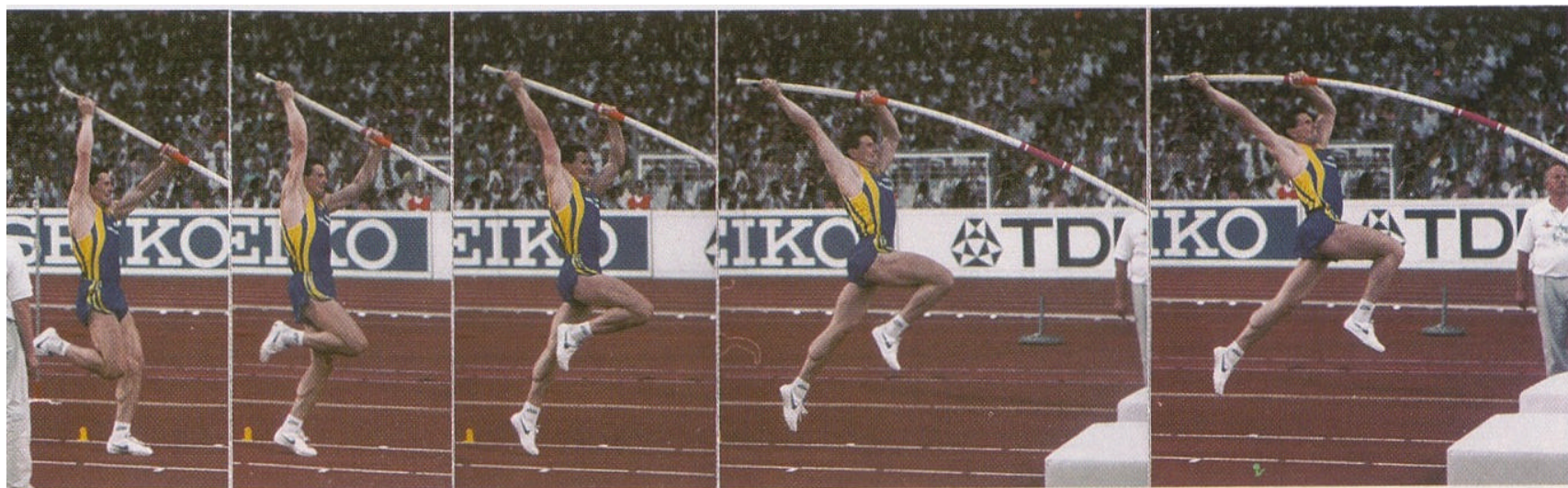
Bar clearance (32-33-34-35-36-37-38)

Sergey Bubka does not even feel the need to complete his vault by pushing off against the pole with his right arm. He releases both hands from the pole virtually at the same moment (32). This action could be considered as a fault, which in no way hinders his clearance of the 6 meter height.

He then negotiates the bar clearance by attempting to merge with his trajectory, pulling in his chest and holding his arms in tight alongside his body.

Were it not for the lack of push-off from the pole, Bubka's vault could be taken as a textbook exercise.





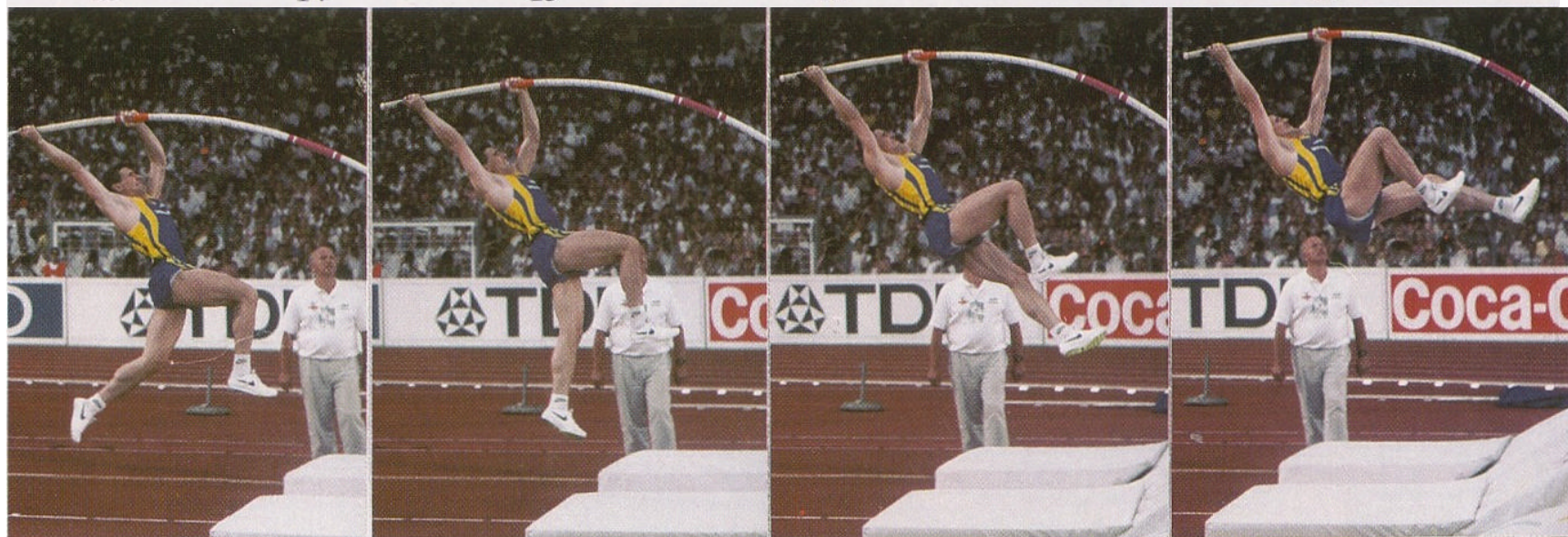
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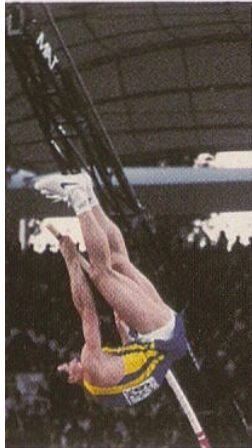
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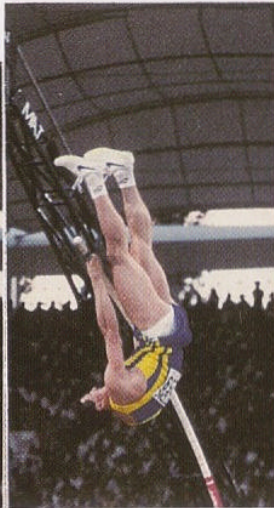
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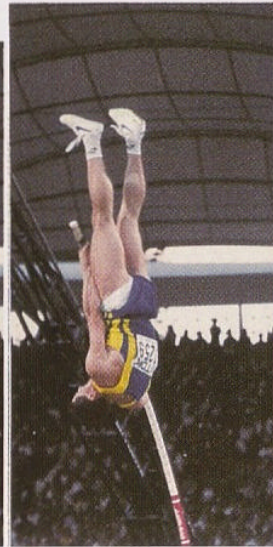
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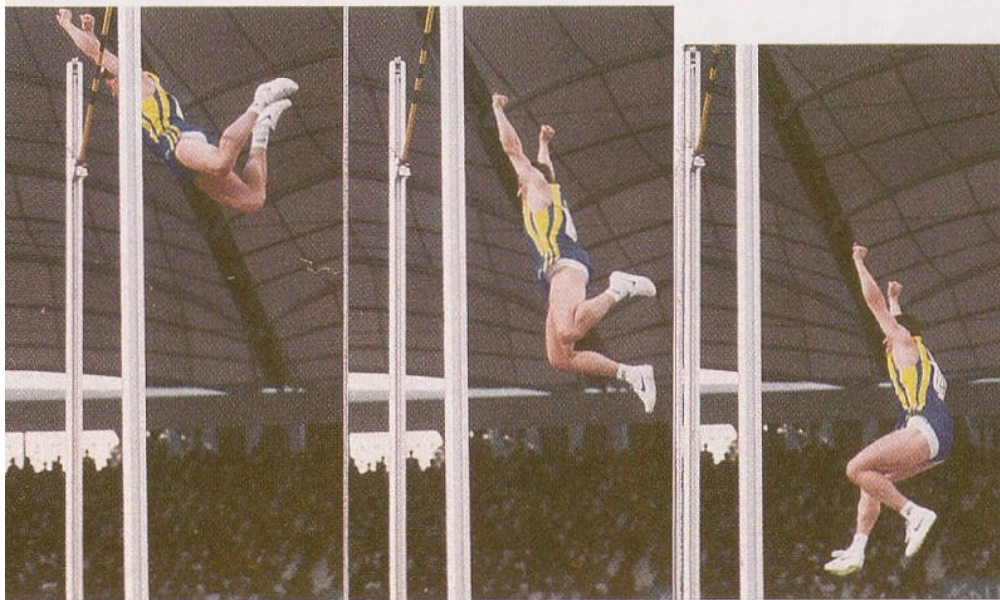
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