

## NSA Photosequences 27 & 28 – Javelin Throw: Jan Zelezny & Seppo Rätty

Sequences by Helmar Hommel  
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### Jan Zelezny (TCH)

The sequence (top pages) shows his sixth throw of 84.12m at the Games of the XXIVth Olympiad, Seoul, 1988. This won him the silver medal.

Born: 16 June 1966  
Height: 1.86m  
Weight: 77kg  
Best mark: 95.66m 1993 (World Record)

Olympic Champion 1992, World Champion 1993, Olympic silver 1988

Progression:		
1979	(13)	44.44m
1982	(16)	57.22m
1983	(17)	74.34m
1984	(18)	80.32m
1985	(19)	84.68m
1986	(20)	82.48m (new javelin)
1987	(21)	87.66m (WR)
1988	(22)	86.88m
1989	(23)	84.74m
1990	(24)	89.66m (WR)
1991	(25)	90.72m
1992	(26)	94.74m (unratified)
1993	(27)	95.66m (WR)

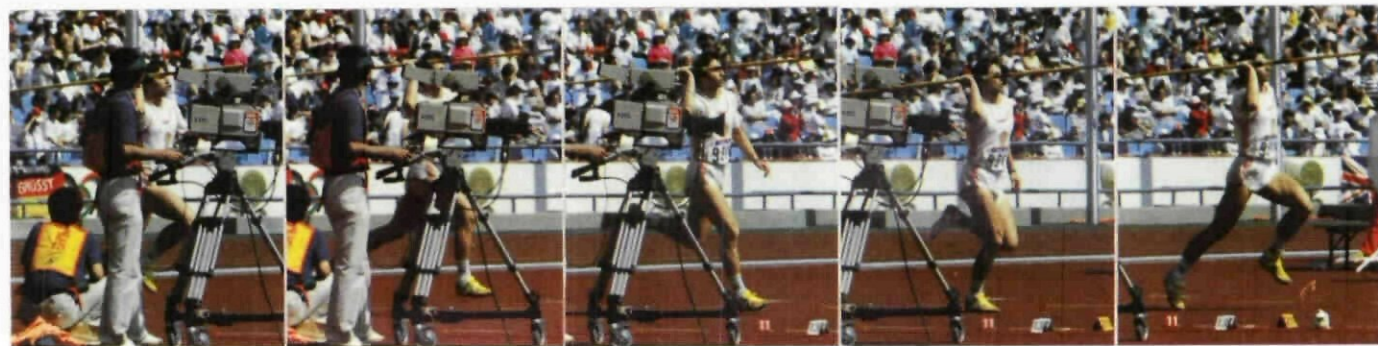
### Seppo Rätty (FIN)

The sequence shows his sixth throw of 80.44m at the Games of the XXIVth Olympiad, Seoul, 1988. He won the bronze medal with his third throw of 83.26m.

Born: 27 April 1962  
Height: 1.89m  
Weight: 110kg  
Best mark: 90.60m 1992; (also 96.96m 1991 with rough surface javelin)

World Champion 1987, World Championship silver 1991, Olympic silver 1992.

Progression:		
1978	(16)	59.04m
1979	(17)	63.20m
1980	(18)	71.14m
1981	(19)	75.44m
1982	(20)	72.74m
1983	(21)	74.38m
1984	(22)	82.60m
1985	(23)	85.72m
1986	(24)	81.72m (new javelin)
1987	(25)	83.54m
1988	(26)	83.26m
1989	(27)	83.92m
1990	(28)	86.92m
1991	(29)	96.96m (WR unratified)
1992	(30)	90.60m
1993	(31)	85.68m



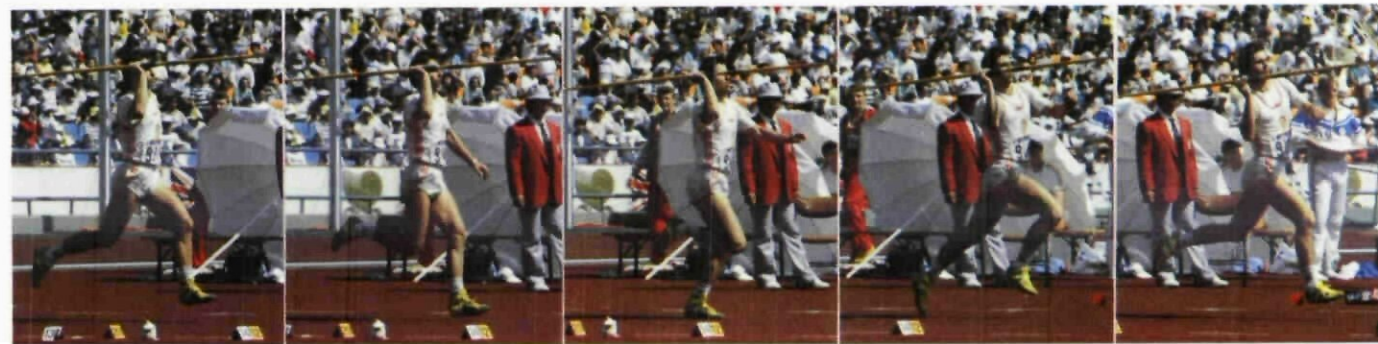
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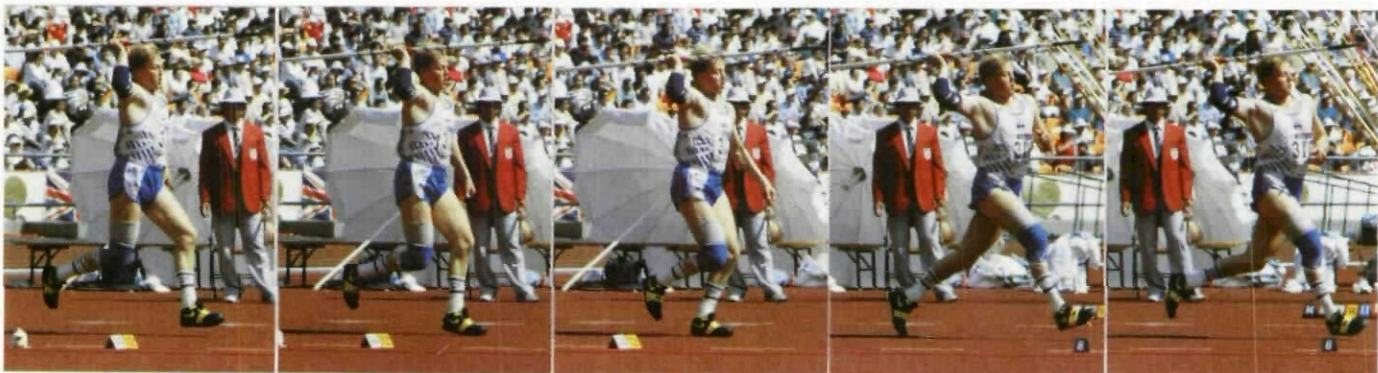
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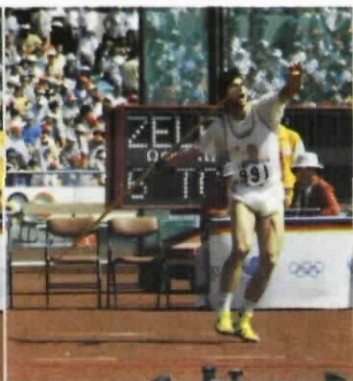
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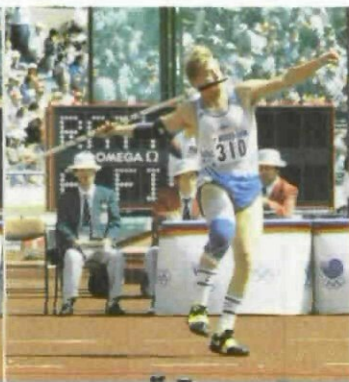
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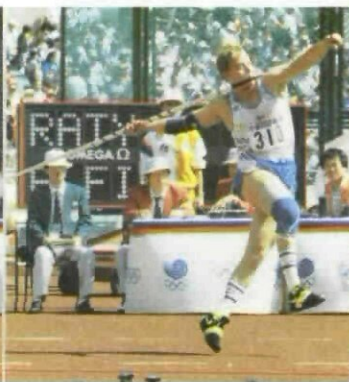
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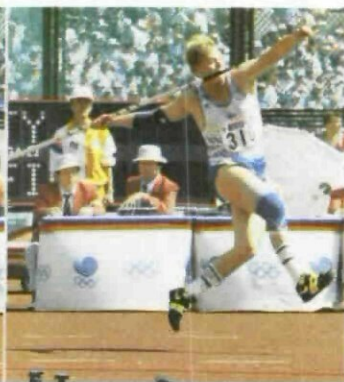
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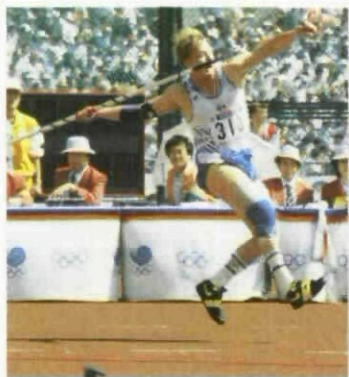
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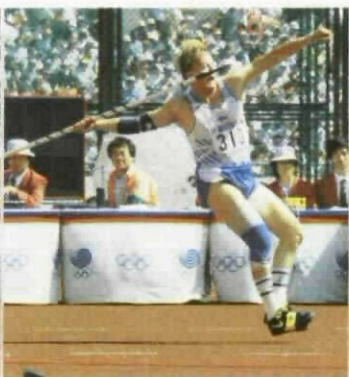
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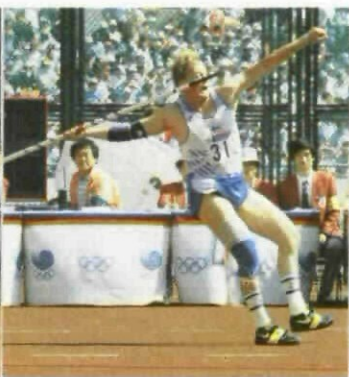
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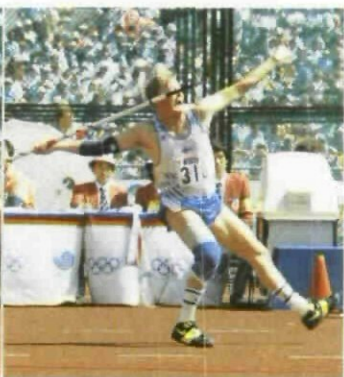
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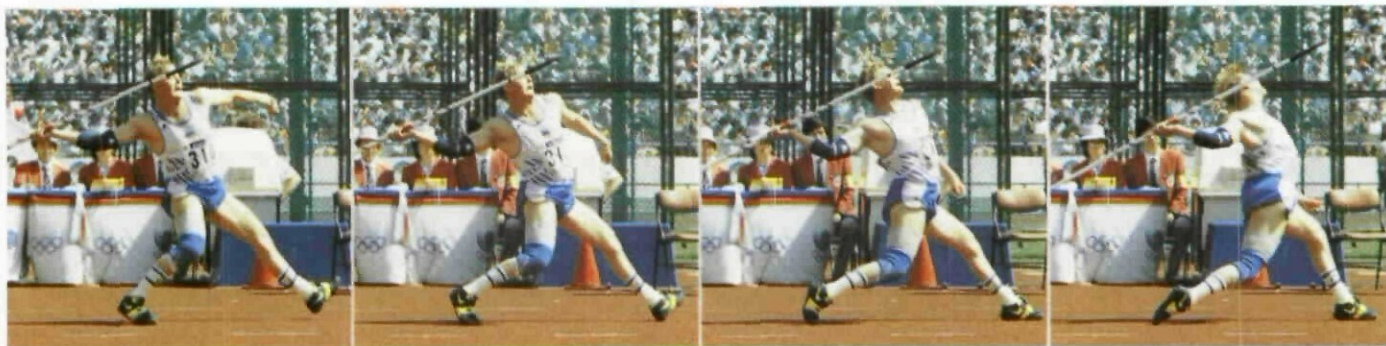
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## Commentary

Anders Borgström

*Anders Borgström has been Swedish National Coach for the Javelin Throw since 1971. He was Swedish National Head Coach between 1984 and 1988. He is also an IAAF Lecturer.*

### 1 Introduction

Jan Zelezny (TCH) and Seppo Rätty (FIN) have proved to be two of the most successful javelin throwers of the last decade. Zelezny is the reigning World and Olympic champion and the current world record holder. He also placed second in the 1988 Olympic Games and third in the 1987 World Championships. Rätty was first in the 1987 World Championships, second in the 1992 Olympic Games and 1991 World Championships, and third at the 1988 Olympic Games. The sequences show throws from the 1988 Olympic Games.

### 2 The Approach and throw

#### 2.1 Cyclic phase

Both throwers show good characteristics of rhythm and balance, reaching an adequate speed (1-10).

#### 2.2 Withdrawal

Both throwers start to withdraw when the right foot is planted (11). Zelezny does this in a way that is reminiscent of former Olympic champion Janis Lusia (URS). His circular movement takes a little longer than the linear movement used by Rätty, but both throwers bring



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the javelin back into good positions (11-17). Rätty demonstrates a typically Finnish rhythm step at withdrawal.

### 2.3 Acyclical phase

Both throwers carry the javelin in a rather low position. This allows the thrower to control the javelin very well, 'feeling' the implement close to the body (18-21). It is noticeable that Zelezny lets his right foot 'glide' on to the track (21). This can reduce speed and disturb balance. Both athletes demonstrate a powerful cross step directed forward (22-26) initiated by planting the left foot in a 'gripping' fashion (19-22). Body positions are well balanced. Both men move forward in an attacking fashion and neither leans back excessively. I know that many Javelin Throw coaches prefer athletes to lean back further in this position, but I don't.

### 2.4 The throw

Both throwers have the correct posture when they land on their right foot. In my opinion, the vertical projection of the body's centre of gravity (CG) should be above the right foot at this moment! If the right foot is planted too far in front of the CG then speed will be reduced. If the foot is planted behind the CG balance will be lost and the distance that the javelin can be influenced with power before the release will be reduced.

The Biomechanical Report of the 1987 World Championships in Athletics shows that Zelezny lost only 1.45% of his speed in the last few strides as compared to a 7.35% loss of speed by Rätty. The reason for this is evident in photo 27 of Zelezny where his left foot can be seen well ahead of the right. This position allows the thrower to plant the left foot quickly with good rhythm. The javelin, shoulders and hips are almost parallel to the ground. The right arm is straight and on a line



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drawn from the left shoulder through the right shoulder. It is important that the right elbow is not under this line. The javelin is under full control with the tip in a low position close to the head.

During the last stride Zelezny keeps his left shoulder in the the direction of the throw until the left foot is planted (27-30). The acceleration of the right hip begins during the last stride and increases dramatically when the left foot is planted. The right arm stays relatively extended (30-31). This allows Zelezny to adopt a good 'C position', which is very important (32). The strike with the right arm follows and the right elbow moves forward/upward (32-33).

The position of Zelezny's right elbow is relatively low in comparison with the position generally recommended by coaches (31-32). In this position, injuries may develop unless the right arm is rotated to allow the palm of the right hand to face upwards. Zelezny succeeds in bringing the arm round but I would be wary of recommending this position to a less accomplished thrower!

The left side is blocked firmly by Zelezny. Rätty, however, does not show his real potential. His CG is not as high as it is in his best throws and this might indicate why this particular throw was not one of his most successful!

Both throwers execute their throws relatively close to the foul line. Zelezny's left foot is approximately 1.40 metres and Rätty's approximately 1.20 metres from the line. The block (ideally in order of hip, chest, shoulder and arm) should, in a good throw, make the speed of the body's CG slow down by 55-70% from the time of planting the left foot until the javelin is released!

To put all the power into the intended flight direction of the javelin is extremely difficult. This is evident in the case of both Zelezny and Rätty (31-35). The javelin is obviously influenced by forces which are applied in directions other than linear and big oscillations can affect the javelin. Minimising these oscillations should be one of the most important aims of technique work.

The angle of release and of attack seem adequate for both throwers.

World class throwers like Zelezny and Rätty – and of course Steve Backley (GBR) – have their own individual 'quirks' of technique but share a number of important similarities. These are:

- good rhythm and balance
- firm block with the left side (in their best throws!)
- super-delayed strike with the throwing arm and a hip-chest-shoulder-elbow-hand distribution of power effort.