

## The state of the women's pole vault

with Vitaly Petrov, Herbert Czingon, Sergey Bubka, Greg Hull, Agoston Schulek

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*Greg Hull is the coach of Olympic and World Champion Stacey Dragila (USA).*

*Agoston Schulek is Vice President of the European Athletic Association and was coach to a number of top Hungarian pole vaulters.*

**NSA** What is your opinion of the current technical level and the performances achieved by women in the pole vault?

It will also be necessary to increase the average level of performance in order to stimulate competition.

Czingon

Petrov

The current technical level reached by world class female vaulters with respect to their qualities and talent is outstanding. Their margin for improvement has not been reached yet and further progress will be determined by:

- A more rational approach in the development of the athlete in order to provide the best possible path for learning and technical development. This should start at about 9/10 years of age and reach a complete and harmonious physical development over 8/10 years.
- Selection of athletes with the appropriate anthropometric attributes and basic motion abilities to respond effectively to the event's intrinsic needs.

The technical level is still at least ten years from what will be possible in the future. One male athlete I have been working with, using a shortened run-up of ten steps reaching a measured speed of 8.0 metres per second (typical for women's results of around 4.50m with grips of ca. 4.20m) has easily achieved 5.20m with a grip of 4.55m! There is no obvious reason why a woman should not be able to achieve this level. We should expect the same ratio between the men's and women's world record as in the other jumping events: now at about 78% it will go up to around 85%, meaning results of at least 5.10m, maybe even more than 5.20m.

The most important factors limiting increase in women's technical levels are improper introduction (the first six to eight

months – many faults learned in this phase are very hard to get rid of) and insufficient strength, especially in the upper body.

### Bubka

The technical level amongst female vaulters is very good at the moment. Isinbayeva for example has an excellent technique. The development in the technique will be quick. Women tend to be very precise with their movement and technique. They have to be technically proficient to achieve height, more so than men who can make up for errors with speed and strength.

### Hull

I believe the technical level in the women's vault is just beginning to come around. One of the easiest items to quantify in the vault is the height cleared above the height held on the pole. The top ten women are beginning to approach the 50cm to 75cm level of performance in this area on a consistent basis while a great number of men are in the 75cm to 100cm range. It must be noted that it is easier for this number to be higher when you are holding higher on the pole but I still believe it is a weak area for the vast majority of female vaulters.

### Schulek

The very best women pole vaulters have achieved a pretty good technical level so far, especially Isinbayeva and Feofanova. The technical level of women vaulters has developed far faster than we expected after the introduction of the event.

**NSA** Is there (or can we expect) a difference between the technical model of vaulting for men and women?

### Petrov

There exists an ideal technical model for pole vaulting and it has to be the reference for both men and women.

### Czingon

I don't think so. In reality there are still differences between the men's and the women's technique, but this is because the event is so young and even the world's best female vaulters are far from perfect. The next generation of women pole vaulters will get a lot closer to fulfilling the principles of the mechanics of the pole vault at the highest possible level. The current generation of male vaulters still has to work hard to get close to what Sergey Bubka achieved a long time ago! However, due to physiological (especially hormonal) differences between men and women there will be bigger differences between men's and women's training concepts in the future.

### Bubka

They should be the same. There shouldn't be any real difference. Women have shorter poles, the grip is different, but the concept is still the same.

### Hull

I believe the basics are similar, but lower strength levels and the slower take-off speeds developed by female vaulters make some actions quite difficult.

### Schulek

I don't think we should expect any mayor differences between the technical model of male and female vaulters. I believe the only difference comes from the different muscle construction between the two sexes. Because women are less muscular, they tend to have a better rhythm in the air.

**NSA** What physical attributes do you look for in a female pole vaulter? Are they different attributes to what you look for in men or the same?

## Petrov

The characteristics necessary for the pole vault are similar for both men and women:

- Speed
- Coordination
- Specific strength
- Flexibility (to develop a correct posture and flexibility of the joints)

It would be ideal to find all the above mentioned qualities in a tall athlete.

## Czingon

A female vaulter should be between 1.70m to 1.80m in height, weigh no more than 65kg, (ideally below 60kg) and of course, she should be fast with good gymnastic abilities. She should also have the scope to develop her strength.

## Bubka

A good all-round, well prepared athlete. A gymnastic background is good.

## Hull

In any vaulter I'm looking for a few key elements:

- The ability to have a powerful and fast approach run
- A very high strength to body weight ratio
- An innate sense of balance and rhythm

## Schulek

Generally there will be no major difference in the physical attributes between male and female vaulters. Because of the natural and normal muscular differences, women vaulters need to be better at gymnastics.

**NSA** Do women have any advantages in the pole vault (eg because of previous experience in gymnastics)?

## Petrov

Previous experience in gymnastics has proved to be an advantage as it is an important part of the preparation for the pole vault. The real advantage consists in the fact that this experience has been applied to an existing and stable jumping methodology already developed in the men's field.

## Czingon

No. Every vaulter, men and women alike, should try to prepare perfect gymnastic abilities. Women entering track and field after a gymnastics career (just as men doing the same) often have to work very hard to achieve sufficient speed and takeoff abilities, sometimes causing injuries to the legs and feet.

## Bubka

Yes, if they have a gymnastics background. Women usually learn gymnastics at an early age as opposed to men. It is much more difficult to learn as you get older, so women with a gymnastics background do have an advantage. The gymnastics training help with the second part of the vault, the flight. Isinbayeva has a technically perfect flight.

## Hull

If so, it is only in the very early learning phases. It may actually be a detriment in the more advanced phases, especially concerning approach and take-off dynamics

## Schulek

These days we have more ex-gymnasts amongst the women than the men, so it

appears that they have an advantage, but in the future this should disappear. We have to underline the great importance of gymnastics not only before becoming a pole vaulter but also later, during the preparation.

**NSA** Are female pole vaulters more prone to injury than their male counterparts?

Petrov

Yes, indeed. This is because of the lack of appropriate long term preparation for women pole vaulters.

Czington

I don't think so. To me, women seem to be able to take more training volume but only on a lower intensity level. In Germany, we have had the same types of injuries with both women and men. There are, however, some types of injuries that are more typical for women than for men (stress reactions, stress fractures), but this does not mean that the total number of injuries is higher.

Bubka

Women are more fragile so, yes they are more prone to injury, which is also where the gymnastic training comes in useful; they are used to stretching which can help avoid injury. It is the job of the coach to prepare the whole of the body, every joint, every muscle, every ligament, and not to push the athlete too hard to young. The reason why I stayed at the top for so long was because my coach prepared me totally as an athlete and had a long term plan. Really, it is the same principle for women. Injury is the sure signal that something is wrong with the technique, the speed on the runway, the weight training. . . Whatever the reason, the athlete is making a mistake and it is up to the coach to analyse every detail.

Hull

Yes, as are all female athletes. It is most likely due to the shape of the pelvic bone and the structural shape of the shoulder area.

Schulek

No, I don't think female vaulters are at a higher risk of injury than male vaulters. Now that the landing pits are bigger and safer, it prevents athletes from landing badly. Also the slight differences between the poles now being used protect the vaulters

**NSA** What are the main areas for development in the women's pole vault? (eg technique, speed on the runway, equipment (stiffer vaulting poles)).

Petrov

The major area of progression factors is the technical and the understanding of a harmonious development of the intrinsic components of pole vaulting. The increase in the performance level is linked to the maintaining of such proportions and to the research of new solutions. Some technical aspects could be influenced by an eventual review of the rules leading to, for example, a different form of the box.

Czington

As said before, strength development is the key for technical development and top ratios between approach speed and jumping height. This process normally enables the use of stiffer poles and higher grips. We still have to develop training concepts that will better meet the female's physiology.

Bubka

Women are already very technically proficient. I think the main area for development is

in the equipment, in new materials. In the same way that the pole has gone from bamboo to steel to fibreglass, new materials will continue to lead to improvement. I think there is more to come from this area rather than just using stiffer poles.

### Hull

We must continue to get better athletes into the event (taller and faster) as well as stress the mechanics of the approach and take-off ahead of the gymnastic type actions while on the pole. The ability to hit a powerful take-off is lacking in the vast majority of female vaulters

### Schulek

I believe the major developments will come from improved speed and technique. If we have tall, fast vaulters with good technique, the results will develop rapidly.

**NSA** Where will the event be in five years time? How realistic is five metres? What height would you consider the equivalent of the male world record (eg 5.10m)?

### Petrov

The achievement of five metres is already in the legs of some athletes. The improvement in the next five years will be limited to heights of 5.10m - 5.15m. Given current technology I can even see a realistic world record of 5.20m. I think a measure of 1.15m corresponds to the difference between the male and female world records.

### Czington

This is still a very young event; it has been just eight years since the first international championship in the women's pole vault. Five metres will be a reality soon, as Yelena Isinbayeva showed us in Budapest at the World Indoor Championships in Athletics. If she's in a compe-

tion with a good tailwind, taking the right pole and the right grip, she could well jump five meters this year. In the long run the world record will reach heights around 5.20m. That said, we will have to see if the women in the pole vault can do a better job in finding the right balance between preparation, competition and regeneration than the current generation of male vaulters. They seem to have been making mistakes here as the decline of their results since the beginning of the 1990s proves.

### Bubka

I think the future is excellent, the competition is exciting. There are so many women who are vaulting well which is producing good competitions. They are spurring each other on. There have already been several world records. Five metres will come along soon and Isinbayeva is ready for big results. I'm sure she has the potential to achieve in women's vaulting what I did in the men's event. I think maybe 5.15m in the women's event would be the equivalent of the men's world record.

### Hull

I do believe that five metres is very realistic in the next year or two and that we will need to see a women's world record of 5.20m to compare it to the men's. I think the next five years will see a few more top level women, but we must improve the quality of an athlete in the event if we are to see a large group of women consistently achieving 4.75m to 5.00m.

### Schulek

The five metre mark is not far off! As we heard from Isinbayeva's coach in the IAAF seminar after the World Indoor Championships, she has already cleared it in training, using a special inclined runway. It means that soon she will be able to clear it under perfect conditions. Moreover, she didn't have stiff enough poles in Budapest, but nevertheless achieved a new World Record. If we compare the male and women world record, I think 5.30m is comparable with Bubka's record.