

# QUESTION AND ANSWER WITH DR. ANATOLY BONDARCHUK

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***Question: You seem to say that there is a possibility of quickening (acceleration) only with a double support on the ground. Don't you think that there is a possibility of quickening with only one support on the ground lifting and lowering the centre of gravity, particularly in the phase with only one support point, that is to say in changing the plane of the rotation axis?***

Bondarchuk: Yes you are right. When I say that quickening takes place during the phase of double support, I want to say that during this double support the speed increases by 99%; during the phase with single support, it is true that between a certain time interval the speed increases before the right foot touches the ground. That because at the high point the athlete has a tendency to bend the left leg before landing on the right leg, thus at this moment, when the whole system of the appliance lowers, there is a small quickening (example).

***Question: What are the essential modifications you have brought to the hammer throw over these last years?***

Bondarchuk: There are two fundamental answers to this question:

1. the first modification we brought is that of the active trajectory of the hammer itself,
2. the second modification, is that, in the single support it is the hammer which leads the athlete and not the contrary.

***Question: Can you specify the movements of the left leg during the phases of double support?***

Bondarchuk: I have never studied such a detail and I think that it would be impossible to answer such a question. What interests me is to give a general idea of the technique for hammer throw.

***Question: Which type of strength training drills do you practice during the training session's strength-technique? During the preparatory phase what is the frequency of the training sequences?***

Bondarchuk: As drills, we practice snatch, clean and squat jumps with weights, and we use movements where we lean forward with weights on the shoulder.

As far as the second part of the question is concerned, we spend about 15-20 minutes on each sequence of these drills. Thirdly, we work these drills rapidly and with relatively light weights, and we make 10-15 repetitions of each drill.

***Question: Some years ago, you were in favor of an integrated training technique. Nowadays you present a much more analytical method, that is to say a method separated into different phases. Why have you modified your training technique?***

Bondarchuk: There are three different ways of teaching: an analytical method, a synthetic one and a method called integrated. With the integrated method, athletes perform each drill separately, and then put them together.

As far as I am concerned, I am in favor of the synthetic method, but it depends on the co-ordination capacity of each athlete.

***Question: You talked about angle of position for the right leg when lifting the right foot, second or third turn; could you explain more thoroughly the reasons for such an action?***

Bondarchuk: In the first part the system makes a turn of 90° with regards to the initial position; in the second, third and fourth turn, he lifts the legs as we just saw, and that because during these turns, the athlete and the hammer gain speed and thus it is not possible to turn an angle of 90° as during the first turn.

Second point, if the athlete tries to make an angle of 90°, he may lose control of his hammer.

***Question: Is the maintained speed during the second phase the main cause for a correct execution of the chaining?***

Bondarchuk: Here there are two conditions:

1. the first one is that the rotation plane of the hammer and that of the body must not coincide.
2. the second one, the head must reach a sufficient speed so that the system athlete-hammer may turn correctly. The system must turn thanks to inertia.

***Question: During the finals of the 1986 European championship in Stuttgart, Litvinov and Sedykh performed something slightly different from what they had done in 1982 in Athens. For example they shortened the***

***radius with regards to the throwing line so that they increased their speed and the explosive action of the left leg; what is your opinion about this?***

Bondarchuk: I should say that I do not think that there had been a change in the principle of the hammer throw technique between 1986 and 1982.

The only modification is the result, and it is maybe because the resistance of athletes to the hammer modified itself. The resistance to the force compels the athlete to increase his own speed and at the same time his resistance to the movement of the hammer.

Thus, the most recent throws have shown that the athlete had a more upright position rather than a bent position during the throw.

***Question: What is the present factor which limits most the progression of your athletes: speed, strength, technique or something else?***

Bondarchuk: Among the facts you enumerated I think that the most important is speed.

***Question: As a hammer thrower, I learned to make the turn with the right side, while moving the weight forward in the direction of the throw, and then I turn around the center of gravity on the feet. Does this appear correct to you?***

Bondarchuk: It would be difficult to say exactly what you have between your legs.

There is a general biomechanical law:

- the system of the thrower turns around the vertical axis
- second point, the rotation axis goes roughly through the heel, and depending on the strength of the athlete, the system moves in the direction forward-backward. With stronger or weaker athletes you will have a difference of inclination (examples with demonstration).

***Question: How do you prevent an athlete from moving towards the left and turning in the initial turn?***

Bondarchuk: It is important to move both body and hammer at the same time, and that is what I teach. If the body weight is on both legs, and then in proportion as the hammer moves to the left, the weight inevitably moves onto the right leg to keep the balance of the athlete.

***Question: Does the movement begin when the hammer is in the centre, or is there a preparation?***

Bondarchuk: At first the hammer moves and the feet remain stable, then in a more forward position, the hammer and the body will move simultaneously.

***Question: Do you turn as soon as the foot touches ground?***

Bondarchuk: You have to teach young athletes to plant their foot as quickly as possible, and as soon as the foot is on the ground the action begins immediately.

I will show you later a film and you will be able to see Litvinov's throws, and you will then see the correct execution of the movement.

Sedykh will begin to turn on the left heel, the right foot fixed on the ground, and then the hammer moves and all the weight is transferred on the left leg, and it thus unloads the right foot which can then freely move forward.

***Question: What are the faults in Sedykh's technique, and when do you think he will reach 90m?***

Bondarchuk: I think that all athletes have faults and the difference lies in the importance of these errors; Sedykh has faults but they are not major.

It is difficult to foresee when Sedykh and Litvinov will reach 90m, but I am sure that in a few years, and during the 1992 games, one athlete will reach 90m.

***Question: In order to develop the rotative capacity, do we have to turn with or without a hammer in the opposite way; would it be a useful drill.***

Bondarchuk: I think that the interest of a left rotation, with or without hammer, would be the same as kissing a woman through a glass. It bears no nice feeling.

***Question: What is the importance of the plane of the hammer during the first turn? How can one control this plane above all for a thrower making 4 turns?***

Bondarchuk: There is a phenomenon of amplification in the successive turns. If in the first turn the hammer is already high, it will even be higher in the following turns. Of course if you hold the hammer too high during the turns 2, 3, 4 it will disappear. It is a very complex theoretical question. Most of the great throwers have a tendency to hold the hammer too high from the first turn and to have an upward trajectory up to the fourth.