

1. Introduction

Hockey is one of the sports, which experiments many changes in order to improve its development.

It has a perfect mix between technique and coordination, with two elements: the ball and the stick. It is striking for many viewers, that the goal can only be marked just inside the area. But this is not an impediment for scorers. There are many ways of immortalize scorers, but just one them is prevailing over the others for the last decade and a half: THE DRAGFLICK

The drag flick is a technical and complex gesture, which requires a tough and counciessnes training. It has the great disadvantage of being so sharp and explosive, so eventually it may causes several minor injuries or major one

It is indispensable to prepare your body either for a match or just for training. Your muscles and your articulations must be ready for shooting. Therefore you should start with prior soft shooting, which includes passes for diversions, for example. Both, in the initial physical preparation, and before starting with the shooting, it is VITAL the stretching. Not only to prevent player from injuries, but to eventually improve considerably and gain, the stretching the drag flick requires.

We are all aware of the importance of the efectivity in penalty corners. Many of the last World and Olympic Champions found in the penalties the key to unlock games.

Netherlands has been historically above all the countries in the use of penalty corners with Floris Jan Boveland, Lommans and currently with Tacke Takema.

Taco van den Honert of has been the precursor of this new and revolutionary technique in the corner. The Drag flick: as the mixture of push and the flick. Where the first part resembles the technique of push and finally, the use of raising the ball, belongs to the flick technique.

2. The penalty

The penalty corner should be trained as one great team, where the server, the stopper and the shooter know each other perfectly. If they work together knowing their virtues and defects, bigger are the chances of success. The goal belongs to this great team, because although, the serving and stop, usually are more regulars, the shooter requires the greatest precision and the highest speed.

Many club coaches, do not train the penalty corner as it should be properly trained, either because they do not have the time or the space this situation requires. This technique demands a lot of time to learn it, as well as it needs a great dedication and strong-minded players.

It is a long-term bet to obtain the maximum happiness, TO SCORE A GOAL

3. The technique of the Drag flick

There are many techniques of Drag flick today, I am going to show you the 5 crucial points to improve the technique, taking into the account a study of biomechanics realized by the Polytechnic University of Madrid. I joined Enrique and his team and they have been working for 6 months in the technique at the moment of the execution. They are plenty of technical details, that make it complex, and as always, the most important thing is the adaptation of player to the steps that make up this gesture. Such adjustment should be gradual and planned for long-term period.

Many coaches do not use the Drag flick shooters, because they believe that “they are not ready to score goals”, but we have to keep in mind that no one starts developing the drag at a high level, all of us had begun at lower levels, with weak and imprecise shots that do not scare any goalkeeper either at national or international level.

- **Benefits:**

Having more than one shooter in your team is really very good news. Because thanks to the healthy competition they would gain hours if individual training, trying to improve and be better than his companion. As a coach another benefit you obtain is that it allows you to use them in different positions, to have passes to diversion, it really opens the range. Nowadays you can use the “hooked” allow the team have passes to diversions or to the server. It also opens the range to make the hooked, which is drag with a high percentage of goals.

4. Drag-flick

The drag flick is today, the most important gesture for the penalty corner, in which the athlete drags the ball a certain amount of meters glued to the stick, ending the launch with the highest possible speed of the ball above the ground level.

The launching is based on the transmission of speeds from an imaginary line traced between points on the hips, shoulders, grip and the end of the stick. This is the result of the movements impaired by the rotation of the pelvis, trunk, and the arms-stick.

5. The bow of the stick

I have to mention that the bow of the stick of it is really important to achieve good results. In the year 1999 I was the sale manager of a brand of sticks, and my father was in charge of bending the wooden sticks, with steam and placed in them in the press so I can have the desired curve. I also carry the press to international tournaments with Argentina, in order to continue the arch, because the wood sticks tend to return to their initial position.

6. Steps of the Drag-flick

- ◆ Step 1. Prior movements to contact with the ball are specific for each player.
 - There are players who start right next to the stopper.
 - Others start a few steps behind the stopper.
 - Some players come out with feet together and others, with feet apart.



◆ Step 2. The position of the left feet next to the ball.

It is important that the player is comfortable at the first contact with the ball and with the leaning of the left foot on the ground.

It is vital that the player arrives with what it calls "Timing," It should not exist time between the stop and the start of the shooting. At this stage is not convenient that the player reaches its highest speed, as this may lead to in coordination. (Students. of bio) During the performance of the Drag-flick, there should be two speeds well differentiated. The first one is of approximation; the player should arrive calm and comfortable

- Most of the players step behind the line of the ball other just next to the ball. A few of them inside the area.
- The key is that the step of the left feet must be diagonal and with the body by the side.



◇ **Step 3. Crossing behind the right leg.**

On the contrary during the third movement the player should gradually increase the speed until the end, accelerating the maximum of his possibilities.

- Some players jump or gallop before reaching the ball.
- Most of them cross behind but small step (very few centimeters, just a reduced number of players make a big step).
- The most important tip: to leave the stick behind ready for the execution of the penalty.



- A few of them cross the right feet forward.



◇ **Step 4. The final step: the stride.**

This is the phase in where the drag of the ball is performed. All prior movements are intended to the preparation of this moment, which is clearly the most important one. To this moment the player must reach coordinated and comfortable, because it will be the moment in which he will have to make all of the force for the launch.

In this stage is where the acceleration and the explosive force are used.

It begins with the leaning of the right foot; with the whole body weight this in this leg.

From this moment it starts the transfer of speed and strength on to the ball. The weight of the body is going from the right foot to the foot ahead. This is what I called stride.

The key is to perform the stride, descending the centre of gravity and going right above the ball.

- Try to look for the biggest step. Pointing with your feet to the goal in order to allow the rotation of the body during the shooting.
- Transfer the weight of the body from the right foot to the left one.
- The stride compels the player to have the centre of gravity very low.
- The so-called “going forward and backward” of the ball along the stick guarantee a more powerful shoot.



◇ **Step 5. Ending the technique.**

The Drag-flick is a quick gesture where the explosive power plays a key role. The shooter must implement large forces through his advanced foot in order to keep the position of launching and to maintain the distances between the supporting point required for the shooting.

- All the weight of the body must be on the left foot.
- The centre of gravity should remain low.

- The player must finish with the right shoulder below the line of the right shoulder.
- All the energy must be applied here in order to achieve the “whiplash”.
- The body usually ends the movement pointing to the goal or little bit rotated to the left.
- Naturally the body tends to raise to its normal position.
- Finally the execution of the ball it occurs when it reaches the left foot.



The completion of the technique is with your body ahead of the left foot in most of the expert's shooter.

Therefore the sequence of the movement is the following

- Highest angular velocity of rotation of hip.
- Highest angular velocity of rotation of shoulders
- Pushing the stick with the right hand in the direction of the launch



7. Conclusion

In my own experience, just after 5 years of hard training, from 1995 to 2000, shooting 100 to 200 bowls per day, 2-3 times a week; I achieved a good result in the effectiveness. And even continuing day after day, week after week, and month after month, many days I felt that my technique was getting worse instead of improving. At that time I did not have neither the technology nor the experience to improve, therefore I must admit that the evolution of my technique was due to the deduction of what I should not do, Thankfully today we can identify the crucial points common to 90 per cent of the shooter and make timework on them.

The penalty corner should be trained as one great team, where the server, the stopper and the shooter know each other perfectly. If they work together knowing their virtues and defects, bigger are the chances of success. The goal belongs to this great team, because although, the serving and stop, usually are more regulars, the shooter requires the greatest precision and the highest speed.

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The Drag-flick technique basically looks for the ball to reach the highest speed and specified direction. The speed of the ball is directly related to the end of the kinetics chain.

We could say that the aim is, that the end of the stick reaches the highest speed and direction required at the moment when the ball takes-off.

The sequences of movements of the kinetic chain are:

- Lower limb and hips
- Followed by the trunk-shoulders
- Continuing on the superior member-hands
- Ending with the intervention of the stick

The launching, biomechanically speaking, is based on the transmission of speeds. These speeds are the result of movements of rotation of the pelvis and trunk regarding their axis and stick to its own one

This is performed by:

- Crossing feet wildly in order to win more meters in the shooting. –
- Stage xxx finds the shooter running forward until it leans his left foot.
- Stage xxx changes the position of the body until it is placed more lateral.
- At this stage some players cross the feet in the air and other carry out a lateral movement without crossing.

The steps are involved in a sequential way; starting with the lower limb and hips followed by the trunk-shoulders continuing with the upper limbs-hands to end with the intervention of the stick. Regarding the behaviour of the speed of the stick a surprising fact occurred: players must increase the speed at step 2 and 3 and decrease from step 3 to 4 to finally increase it again in step 5. It can be said that the difference in speeds corresponds to the whip effect similar to that one of a baseball bat or a golf club that turns on the hands of the athlete. This is an effect where shooters accelerate their hands and delay the stick to finally accelerate on step 5 through angular speeds.

Two important details to take into account:

- 1) Overtaking hands
- 2) To the twist of stick on his longitudinal axis allow you to open the face of the stick to start the phase of pushing the ball.

8. Drag flick addressed from the medical point of view. Dr Francisco D'angelo.

9. Drag flick addressed from the physical preparation point of view. Roberto Gomez Castro.

10. Statistics of the World Cup 2010 India