

Tucker Tips

Forward Striding - Good Technique

What is the Proper Arm Swing?

For many years there has been a great deal of discussion, debate and confusion over arm swing as it relates to forward striding. What are the correct biomechanics for forward skating especially when it relates to correct arm swing?

Traditional North America hockey school instructors have emphasized a North to South movement of the arms whereas the scientific research community has shown support for a sideways – East to West motion of the arms. The sideways motion is similar to speed skaters which has been the European hockey teaching philosophy for many years as well. Who is right? After teaching power skating for over 15 years and dedicating more than 5,000 hours to the craft, here's an overview of my observations of the forward stride including the arm swing component. This article examines the Bio mechanics of the forward stride without getting too technical in nature. Note: There's no scientific research data included in this article:

Core Components:

The hockey player who performs best the following 3 components will win any skating race.

1) Length of the Stride

- Head Up
- Requires a deep knee bend / flexion at 90 degrees
- Long full leg extension from the hip, knee, ankle to the skate blade

2) Force or Strong Push off of the Drive Leg

- Forward lean of the body
- Greater angle of the skate to ideally 90 degrees
- Strength of the push from the gluts and thigh – larger muscles

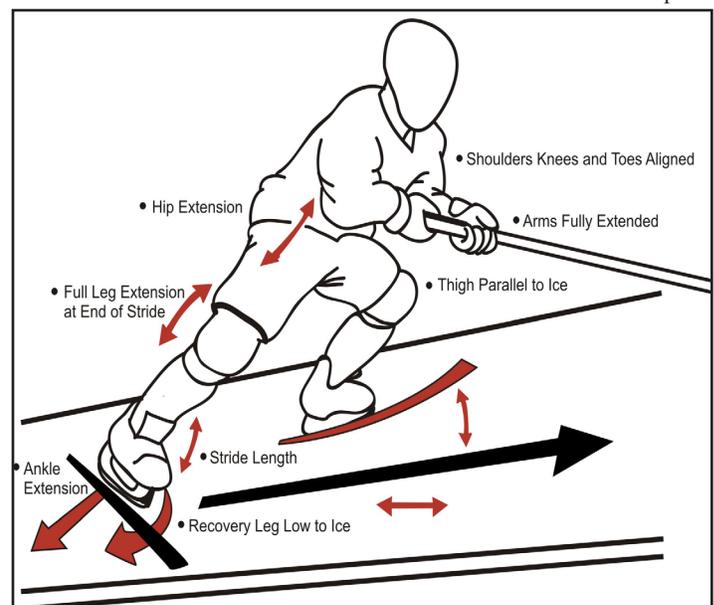
Most hockey players can use their gluts and thigh muscles and push harder than they do. The best skaters take advantage of this skill in their skating stride. For example, I remember

a former NHL defenseman discussing the deceptive speed of Anaheim Ducks forward Teemu Selanne. Selanne keep the same skating stride and frequency of the stride but could shift into another gear. How? The force or strong push off the skate allowed him to go faster without changing his skating style. The great Bobby Orr was very deceptive in this way as well – probably the best in being able to shift suddenly into a higher skating gear.

3) Frequency of the Strides

- Stride rate – speed which players move their legs
- Quicker return of the skates to the ice for the next pushing phase
- Skate recovery is low and quick - circle, circle back and recoil the skate under the body and drive the knee – straight forward to become the drive leg again. The degree of recovery is determined by whether a player is skating in a cruising mode or full speed mode (game situation where there is very little glide but constant pushing phase). In cruise mode the skate is ideally toe – knee – nose alignment under the body but under pressure going full out the skate is more the case of toe – knee – hip – shoulder alignment under the body.

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Proper Arm Swing (Cont'd from 10)

For many years prior to his retirement Scott Niedermayer was recognized and admired as one of the best skaters in the NHL if not the best. Then came along Sidney Crosby with a different skating style but just as effective. The Niedermayer stride consists of a deep knee bend and a very long smooth rhythmic stride consisting of an exceptional recovery (toe – knee – nose alignment) under the body from the drive skate. Whereas Sidney Crosby's stride involves a more power push on the drive skate and a quicker lower recovery with more of a wider track – skates further apart (toe – knee – hip – shoulder alignment) than the Niedermayer stride. Both are very effective and both have been world class skaters!

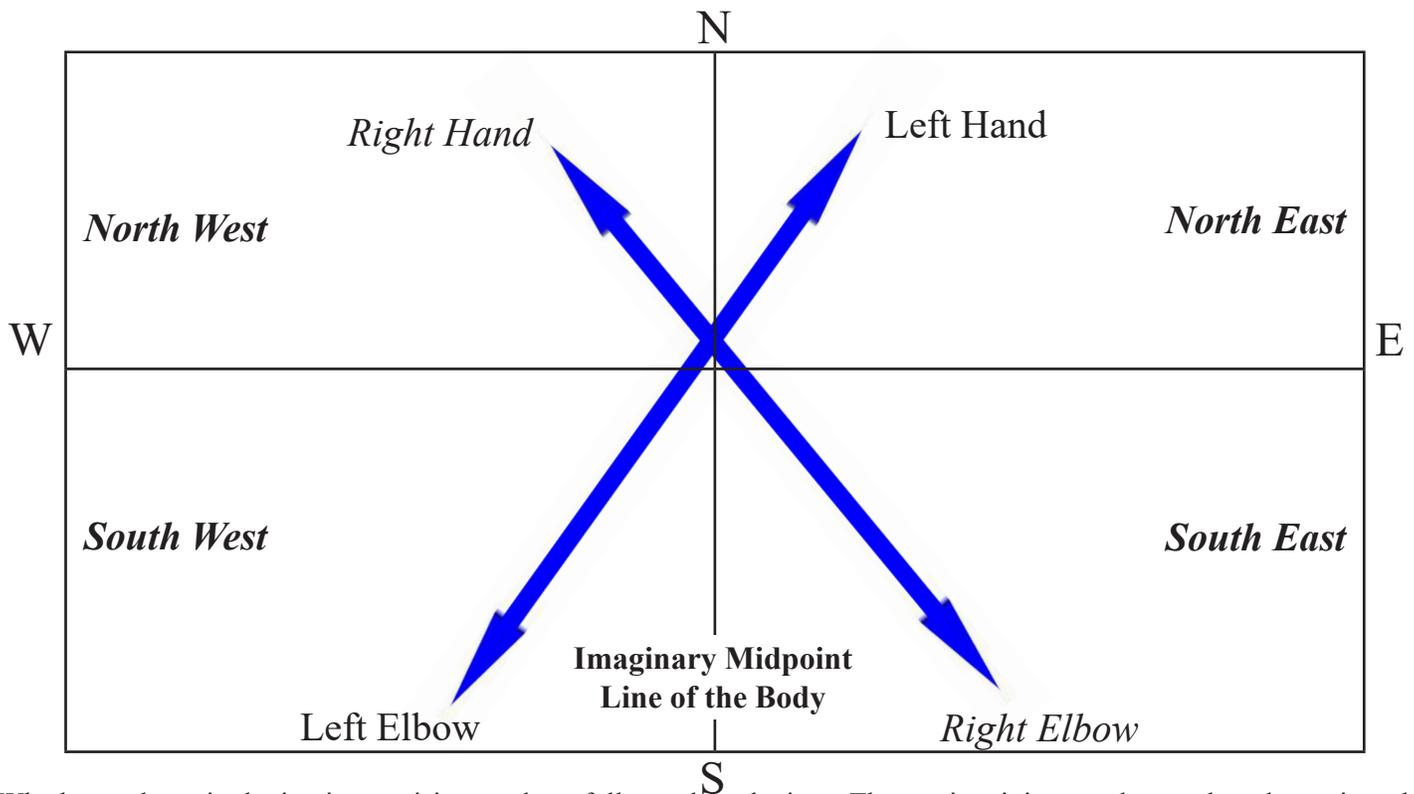
Secondary Components:

One of the secondary components of the forward stride is arm swing. As a power skating instructor, I do not look at an effective arm swing as north – south or east – west but rather “quadrant” based. See illustration below:

quadrant (SE) and right hand in the north - west quadrant (NW) and left elbow in the south - west (SW) quadrant and left hand in the north - east (NE) quadrant . Yes, arms do cross the imaginary line or mid – point of the upper body but not in an east – west direction.

When you watch the forward striding of elite hockey players today most of the time players skate with two hands on the stick. It is not possible to move the arms in a forward backward direction when there are two hands on the stick. Sometimes skating without the puck they will have one hand on the stick often in the neutral zone, when fore-checking in the offensive zone or killing a penalty in the defensive zone. The majority of skating is done from the hips down – so the extension from the hip to knee to ankle flex to the skate blade is more important than arm swing.

So if the basic skating components are the same for every player, why can't everyone skate like Scott Niedermayer or Sidney Crosby? The problem is learning and properly applying the above mentioned components of forward



Whether a player is skating in a cruising mode or full speed (game situation where there is very little glide but constant pushing phase) will determine the degree and direction of arm swing motion. In cruise mode a skater's arm swing is more north – south motion but under pressure going full out the skater's arm swing is right elbow in the south - east

skating. The major joints and muscles determine the proficiency of the skater. Good power skating exercises (i.e. reps) develop skating skills along with good progressions to practice are the keys to developing a good forward stride. However, arm swing is only a secondary component. There are other more important components of the forward stride.