

The Impact of Properly Fit Skates On the Mechanics of Your Skating Stride

Whether it's to become a good skater as an amateur or to continue to improve your skating skills as a professional, you have to have good skating mechanics to continue to improve. You have to understand the basic fundamental movements of skating, which include multiple joints, muscles, ligaments and tendons.

This system or chain of movement must be free flowing and rhythmic, not jumpy and choppy. If any part of the chain is restrictive it will hinder your stride and skating muscle development, overall speed and power.

As an example, in the forest, the size and strength of the tree trunk is not ultimately what determines the strength of the tree. The strongest tree in the forest is the tree that has the best stabilizing roots.

Skates that are fitted properly represent strong stabilizing roots to a skater. Your skates and blades are just an extension of your foot and this is one of the primary reasons to have your skates properly fitted.

Proper fitting skates allow you to generate all of your power to the ice through the fundamental movements of skating. Improper fitting skates will not allow you to generate all of your power to the ice; poorly fitted skates equals weak stabilizing roots.

The movement and power from your skating stride begins at the ice or the ground. Everything is expressed from the ice upward through multiple joints, muscles, ligaments and tendons. If your skate is not properly fitted or rooted on your foot, it will be reflected in the fundamental movement of your skating stride.

Properly fitted skate's provide the roots for the fundamental movement of skating. The properly fit skate becomes a flawless extension of your foot, which is powered by your core, reflected by your arms and manifested in your hands. Athletes must be able to use ground reaction from the ice surface. Simply put, skating is gravity driven.

In relation to the ice the terms open and closed chains can be used. The gait or stride is the gliding or stance leg, which represents the closed chain, and the thrusting leg or free leg represents the open chain. An efficient stride or gait is the interaction and timing of the chain opening and closing.

The key to skating performance is the ability to import force to the ice and in turn derive appropriate useable ground reaction. The ability to control and use ground reaction force has implications in regard to skating mechanics. Proper fitting skates significantly increase your ability to control the ground reaction force.

One of the theoretical solutions in controlling and dissipating ground reaction force has been to make a skate taller, stiffer and lighter. This has actually created more problems than it has solved.

It is important to think of the skate as the interface between the foot and the ice. The skate cannot make up for what the body is incapable of doing. The structure of the body must be trained to reduce the force through as many joints as possible by using the elastic properties of the muscles, ligaments and tendons. It is critical to choose a skate that will allow the foot to act naturally, to work with your body to produce force. The best skate is one that locks in the foot and does not hinder your stride (gait).

When you are properly fitting skate takes you must take the following factors into consideration:

- 1) Shape of heel
- 2) Width of heel
- 3) Depth of instep and forefoot
- 4) Width of forefoot
- 5) Length

Most skate manufacturers do take the above referenced factors into consideration when building a skating but they miss the critical step of fitting the skate properly.

When skates **are not fitted properly**, the following can occur:

1) Improper heel width and shape

- Creates heel movement
- Bone spurs
- Feeling of no support
- Constantly having to tie up skates
- ***Lack of skate control or ground force***

2) Depth of instep and forefoot (too deep)

- In the boot is too deep will cause lace bite
- Premature break down of the skate boot
- Sore ankles
- Feeling lack of support in the boot
- Common error - Over tightening laces in an effort to get support
- ***Lack of energy transfer***

3) Depth of instep and forefoot (too shallow or tight)

- Cramping of the foot arches and balls of feet
- Ankle soreness
- ***Lack of energy transfer***

4) Length (The skate is too long; toes not brushing toe cap)

- Foot movement
- Heel spurs
- Premature break down
- ***Lack of energy transfer***

Mechanics of the Skating Stride

- Coil (Knee bend)
- Thrust (Push, edges)
- Follow Thru (Toe snap)
- Return (Back under you body)

The over all shape of a skate boot should follow the shape of the foot; i.e. Heel, instep, forefoot and toe cap.

If a skate is **laced up to high** it will impede the coil causing a shorter stride and lack of power.

If the **skate boot is too stiff** it will impede ankle flexibility, which impedes edge control, and follow thru. Will also give a feeling of no edges.

The boot should work with the foot regardless if you are beginner or a professional. Not allowing ankle flexibility will negatively impact your skating mechanics regardless of your skating experience.

As a skater, you must skate with your ankles, knees and hips. If you restrict your ankle flexibility through improperly fitted skates, you will cause undue stress on your knees, hip ligaments and tendons. As a result you could be unknowingly **increasing your risk of injury** while at the same time significantly **reducing the power in your skating stride.**

Doug Ingraham

Graf Canada