



# Freestyle Skiing



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## About the Tutorial

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Freestyle skiing is a game of speed and height. This game is played on a large snow field. A player needs to move down along a ramp like structure known as inrun. The player has to jump out of it with as much power as possible and need to fly along the steep hill. It comprises of moguls, cross, aerials and many other styles. This tutorial will guide you with some basic know-how about Freestyle Skiing.

Though the “how to play” section is not detailed enough, yet is sufficient enough to supplement the necessary etiquettes about this game.

## Audience

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This tutorial is aimed at giving fundamental knowledge to a person as to how they can perform Freestyle Skiing successfully. The chapters will have step by step illustration and guidance which will help the beginners build basic understanding about this game.

## Prerequisites

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If you have passion and eagerness to learn this game, this tutorial will serve as vital reference material.

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## Table of Contents

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About the Tutorial.....	i
Audience .....	i
Prerequisites .....	i
Copyright & Disclaimer.....	i
Table of Contents .....	ii
<b>1. FREESTYLE SKIING – OVERVIEW .....</b>	<b>1</b>
History .....	1
Participating Countries.....	2
<b>2. FREESTYLE SKIING – EQUIPMENT.....</b>	<b>3</b>
Bindings .....	3
Boots.....	3
Connection Cord.....	4
Ski Jumping Suit .....	4
Jumping Skis.....	4
<b>3. FREESTYLE SKIING – BASICS .....</b>	<b>5</b>
Putting on Skis .....	5
Putting off Skis .....	6
Snowplough .....	6
<b>4. FREESTYLE SKIING – HOW TO SKI?.....</b>	<b>7</b>
Sliding .....	7
Direction of Least Resistance.....	7
Longitudinal Distribution of Weight .....	8
Initiation of Manoeuvres.....	8
Shifting of Weights.....	8

<b>5. FREESTYLE SKIING – VARIANTS.....</b>	<b>9</b>
Aerial Skiing .....	9
Mogul Skiing .....	9
Ski Ballet .....	9
Ski Cross.....	9
Various Tricks of Freestyle Skiing .....	10
<b>6. FREESTYLE SKIING – CHAMPIONSHIPS &amp; CHAMPIONS.....</b>	<b>11</b>
Champions .....	11

# 1. Freestyle Skiing – Overview

Freestyle Skiing is a game that needs perfect balance of body and mind while taking a jump from the inrun to the maximum possible height to win. This also includes performing various types of flips and twists or other stunts depending on the category. Though the game seems difficult by the looks of it, one can become an expert with perfect coaching and guidance. This tutorial will guide you in understanding the basic mechanics.



The rider (player) has to sail on an ice surface with the help of jumping skis on a ramp like structure. The aim is to perform aerial flip flops and spins. To add to the difficulty level, sliding rails and boxes are also used. The match is played in both men and women category.

## History

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Inception of this adventurous journey started in Norway in year 1808, when Ole Rye jumped over a height of 9.5 metres. The world's 1<sup>st</sup> ski jumping competition was held at Ofte, Norway in the year 1866. Sondre Norheim won that championship and he was believed to be the father of modern ski jumping. After World War 1, a new technique was developed popularly known as **Kongsberger Technique** that helped Sepp Bradl of Austria in achieving a 101 metre jump in 1936.

The concept of aerial skiing was introduced for the 1<sup>st</sup> time in the 1950 Olympics by Stein Eriksen. In 1979, FSI (The international Ski federation) recognised freestyle as a sport and finally, in 1980, the first Freestyle Skiing World Championship was organised. In 1988, this game was introduced as a demonstration in the 1988 Winter Olympics.

## Participating Countries

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Freestyle skiing is one of the rarest sport events that has a worldwide popularity. Since its introduction to modern Olympics in 1988, the popularity and demand of this game from different nations grew exponentially. Many Asian and non-Asian countries have their active participation in this game. The list of some of the major dominating Asian countries includes – Kazakhstan, China, Japan, Mongolia, Uzbekistan, etc. In 2011 Winter Asian Games, Jia Zongyang of China bagged the gold medal in men’s Aerials freestyle category and Zhang Xin of China bagged the gold medal in women’s Aerials freestyle category.

Similarly, many non-Asian countries have shown their talents in events like Winter Olympics. Several countries like, Canada, USA, Belarus, France, Australia, etc. are dominating in the competitions. In the 2014 Winter Olympics, Anton Kushnir of Belarus bagged the gold medal in men’s Aerial category, while Alla Tsuper of Belarus bagged gold medal in women’s Aerial category.

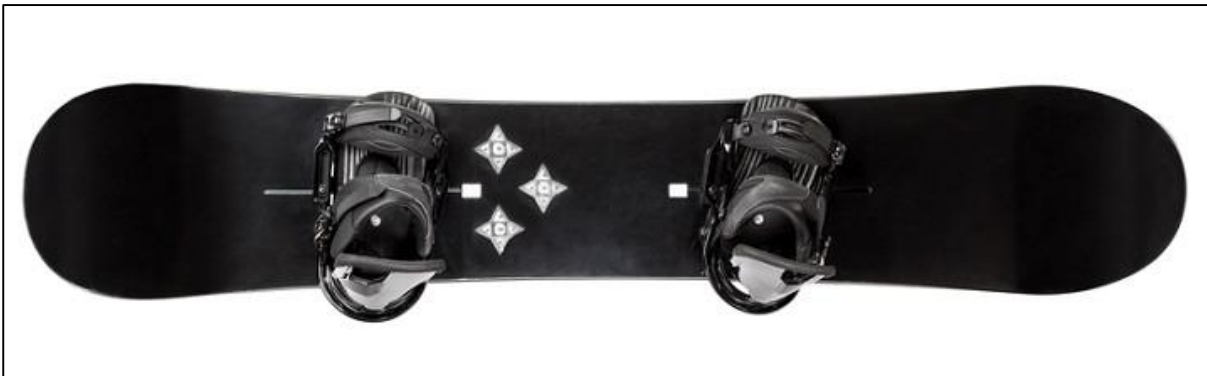
## 2. Freestyle Skiing – Equipment

Freestyle Skiing is a game played on ice and the skiers have to attain as much height as possible in order to win the game. Following are some essential equipment's for this sport.

### Bindings

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Mounting of the binding should be done in parallel with respect to the direction of the run. It should be used in such a manner that about 57% of the entire ski length can be used as the front part.



### Boots

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The designing of the boots is done in such a manner that the player will find it easy to lean forward while performing the act. Also the boot should be flexible. It should have a low cut at the front and should be high-backed.



## Connection Cord

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It is an essential part of binding. This helps the ski in getting attached to the athlete's boot. If a connecting cord is not connected properly then there will be an unsteady motion of the ski during the flight.

## Ski Jumping Suit

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It is mandatory that all the parts of the suit should be made up of the same kind of material. They should have some part of air permeability. As the game is played on snow track, it is better that the thickness of the suit is more.

For the flexibility during the game, the size of the suit should be perfect for the athlete during the upright position.

## Jumping Skis

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They are designed specially to be used for skiing purpose at the striped hills. The length of the ski can be as long as 146% of the athlete's body height. However, the shaping and curvature of the suit is done by considering certain geometric features. To jump, the ski should be of certain length, and the skier needs to have a certain amount of body weight.





# 3. Freestyle Skiing – Basics

Till now we have understood the basic mechanics of Freestyle Skiing. Now it's time to learn about the step by step procedure on how to ski.

## Putting on Skis

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This is one of the initial stage that most of the beginners struggle about. Initially, put your boot into the binding. Make sure that the leaning angle of your boot and the ski must be same. On the front of the binding, slide the lip of the binding into the toe cup of the boot.

Then you should align the heel of the boot along with the back of the binding and bring it down into the heel cup. To tighten the binding clips over your leg, push the heel as much as you can into the heel cup. Once you put on the skis, make sure of the following particulars:

- The Ski should be lying along with the slope.
- Without sliding anywhere, stand sideways.
- Remove any foreign snow particle that is present at the bottom of the ski boot.



## Putting off Skis

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First of all, make sure that you are standing in a steady position of the ski without moving sideways. On the back of the binding, there is a heel lever. Push it down with the ski pole while dismounting yourself from the heel of the boot.

Then upward rotation of the heel cup takes place that results in releasing of the heel of the ski boot. Now it will be easy for you to take out your boot. Try the same with other boot too.

## Snowplough

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This is a method of travelling in a straight line on a slope where we can have control over our speed but not on the direction. To make a snowplough, align your skis in a V-shape in such a manner that the tips of the skis remain at a distance of 10 cms at least. The aim of this position is to obstruct the two skis from hitting each other or running over each other.

This type of a position acts as brake while travelling. The more distance apart the tip of the skis will be, the more will be the braking action with stable maintenance of the body.

Here technically we are moving in a straight line path, but your skis are aligned in a diagonal manner which in turn will create resistance and will result in a braking action.

## Snowplough Turns

In the above section, we have discussed about the snowplough to learn about the speed control. Now we will discuss about the snowplough that will let us know the changing direction methodology.

We have to position the skis in a V shape again that too in such a manner that the right skis will try to go to the left side and vice versa. Distribute the weight of your body evenly on the skis and try to align more towards that ski that you want to make a turn.

This is because more weight on a ski will create a low resistance path below that and you can travel very easily making a turn. The basic formula is that, if you want to turn right, then apply more weight on left and if you want to turn left apply more weight on right.

## Getting Up

If you have fallen back and want to rise up, then bring yourself to the side of the skis. Bring yourself as much close to the skis as you can and then pushing on your knees try to stand up and for this bring the weight on the forward ski boots.

Position of your downhill arm should be diagonally down and over the ski boot and your uphill arm should be close as much as possible to the uphill ski. Pushing should be done with the uphill arm so that you will be able to stand back again over the skis. During this time, the downhill arm should be in a crouched position.

# 4. Freestyle Skiing – How to Ski?

Instead of randomly learning about the skiing methods, you should first understand the basic mechanics working as this is going to grasp the techniques more quickly and easily.

## Sliding

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In case of skiing, sliding is done on a downward slope. This is because of the angle made by the reaction of the snow with the weight of our body. In the figure, you can clearly see that the weight is creating a force component in the direction of the slope. When reaction of the snow is multiplied with the coefficient of friction, we get frictional force. As the force component created by the weight becomes more than the frictional component, we start to slide easily on the snow.

## Direction of Least Resistance

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It is a general thumb rule to travel in a direction of pointing ski because that is the direction in which it has least resistance. Also the ski can find its own way through the snow. If the skier will follow any other direction than a straight forward path, then he has to push more snow out of his way, thereby increasing the resistance of the path and it is quite natural that the skier will obviously go for a low resistance path to have a steady and fast motion.



## **Longitudinal Distribution of Weight**

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Pushing of the skis must be done along the edges in an even manner because this is the area where we can get most of the strength. Therefore, to distribute our weight throughout the whole ski, we have to position ourselves in its middle.

The bindings are attached to the ski in such a manner that if you stand on the middle of the ski with a little leaning forward, weight will be automatically distributed all over the ski.

## **Initiation of Manoeuvres**

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During the time of initiation of manoeuvres, the skier has to shift his body weight away from the centre of the ski. This technique is also used to change the direction or sliding sideways. The active physics behind it is that the place where the skier puts his body weight on the ski, that part tends to tilt downwards.

So if he wants to make a forward turn, then he will apply his weight on the front side of the ski and on the other hand, if he wants to turn it backwards, then weight will be applied on the back side.

## **Shifting of Weights**

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Most of the times, a shift of weight on a proper ski is going to give you a great turn over in your ongoing direction. This is because enough gravitational force does not work upon the skis.

So it is the weight that will help you transferring your pressure from one ski to other ski. This is most important in case of carving or parallel turning.

# 5. Freestyle Skiing – Variants

There are some variants of freestyle skiing in which the skiers participate to win medals and championships. Following is the brief description of some of these variants.

## Aerial Skiing

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Through a 2-4meter ski off jumps, aerialists can perform propelling action up to 6 meters. Sometimes this can be as high as 20 meters above the landing area. Various types of twists and turns are performed in the air and landing is done on an inclined hill which is about 34-39 degree and has the length of about 30 meters.

In this type of freestyle skiing, scoring is done depending upon the form, take-off and landing. Of which, 50% of the scoring is given to jump formation, whereas, the other 20% and 30% have been assigned to take-off and landing.

## Mogul Skiing

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In this type of skiing, the athlete needs to perform on bump surfaces by showing a good combination of acrobatic skills with a touch of twist and turns. Though the concept seems to be a bit awkward, but it is quite easy to perform when one knows the right techniques.

For example, most of the beginners find it difficult to have a turn while moving on the uneven surface, but it is quite easy if you consider the following techniques:

- Never try to take big bumps as your main course of field while moving for the set time. Choose small ones through which you can make your way more easily.
- Use the head of the bumps to make a turn. This is because at the head position you will find it easy to turn your skis in the required direction.
- Use the back side of the bump for braking purpose.

## Ski Ballet

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This type of freestyle skiing was present till 2000. Now this is no more in competition. In this type of freestyle skiing, choreographed steps were performed by players with a background music which lasts up to 90 seconds. For some period of time, in 1980's, pair ballet system was also introduced in which two players were performing various flips, rolls, leg crossing, and jumps.

## Ski Cross

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In this type of skiing, more than one person will be skiing down the ice surface and touching any other person can lead to disqualification from the tournament. It incorporates big terrain features and artificial jumping sets to add more difficulty level to the match.

## Various Tricks of Freestyle Skiing

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Both skiing technology and acrobatic skills are needed for freestyle skiing. Let's learn about some cool tricks and techniques that will help in performing skiing better.

### 180

- During the take-off process, whichever side you want to rotate, just see that side by using twin-tip skis.
- You must make your mind to land backwards.
- Spot the place where you want to land and keep your weight centred.
- Just after landing do not try to turn in forward direction.

### 360

- During the process of take-off, turning of the upper body should take place by watching over your shoulder. Soon you will see that skis will follow you automatically.
- Holding the tail, pull it towards the spin. Do not lose the hold at this moment.
- Now by looking over your left shoulder land upon the spot that you have decided previously.

### 540 Tail grab

- Unless you set the spin harder, the grab is going to slow down your rotation.
- During the take-off process, hold the tail of your ski with your trailing hand and pull it into your spin.
- At this moment, you will be coming through the point of 360 by the spinning action.
- Look over your shoulders and locate the point of landing. Then just centralise your weight and land at the spot.
- During the process of landing, your tip of the ski should touch the ground before the tail.

## 6. Freestyle Skiing – Championships & Champions

The International Ski Federation (ISF) is the highest governing body of Freestyle Skiing that is organized all over the world. Apart from this, all participating nations have their own governing bodies that decide the rules for the game. Some of the important internationally recognized tournaments for freestyle skiing are as follows.

- Alberta Provincial Freestyle Championship
- Asian Winter Games
- Olympic Winter Games
- FIS Freestyle World Ski Championships
- FIS Freestyle World Cup
- US Freestyle Championship
- National Aerial Freestyle Skiing Championship

### Champions

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Following is the brief description of some Freestyle Skiing Champions from various parts of the world.

#### Mikael Kingsbury

Mikael Kingsbury is a freestyle skier from Canada who mostly participates in Mogul events. His achievements include great success in 2001, when he won four mogul and one dual mogul events. That's why he was awarded the 2009-2010 FIS World Cup Rookie of the year award.

In 2010-2011 season, he won one more World Cup and five medals in various freestyle skiing events. He won a bronze medal in his first World Championship in 2011. In his full career, he won FIS Freestyle World Championships five times. Along with this, he has won moguls events 33 times and World Cup event seven times.

#### Patrick Deneen

Patrick Deneen is a freestyle skier from America who is a mogul specialist. He won a gold medal in 2009 Freestyle Ski World Championships. At the starting of his career, he won Junior World Championships in 2006.

With a win in NORAM dual moguls, he again got a position in US team which he has lost previously due to knee injury. In 2008, he participated in seven World Cup events and finished third. He could not get much success in 2009-2010 season.

## Alexandre Bilodeau

Alexandre Bilodeau is a freestyle skier who was the first Canadian to win a Gold Medal in freestyle skiing in 2010 Olympics. In 2014 Olympics, he was successful in retaining his gold medal. He has won FIS World Championships three times.

In 2008-2009 season, he won the moguls event along with the overall freestyle skiing. At the starting of his career, he finished second in 2005-2006 season and was awarded Rookie of the year. In 2009, he won four World Cup events.

## Dale Begg-Smith

Dale Begg-Smith is an Australian-Canadian skier who was a gold medallist in 2006 Winter Olympics and a silver medallist in 2010 Winter Olympics.

He started his skiing career in Canada but it was clashing with his business interest so he shifted to Australia and got training.

After winning the gold medal in 2006, he became one of the five gold medallists for Australia. In the 2005 World Championships, he won a bronze medal in moguls, while in 2007 World Championships he won one gold in dual moguls and one silver in moguls.

## Jeremy Bloom

Jeremy Bloom is a freestyle skier and footballer from America. He has won World Championships three times and Olympics two times. Along with this, he has also won World Cup eleven times. At the starting of his career, he won a gold medal in 2003 FIS Freestyle World Ski Championships.

In 2005 World Cup, he won six straight races. In his other achievements, he was the youngest skier to make a place in United States Team. He was National Champion at the age of 14 and World Champion by the age of 19.

## Justine Dufour-Lapointe

Justine Dufour-Lapointe is a freestyle skier from Canada. At the starting of her career she participated in 2010-2011 FIS Skiing World Cup and became the youngest winner. In 2013, she won a bronze medal in FIS Freestyle Skiing World Championships which was her first medal.

She has also taken part in the 2014 Sochi Olympics with her two sisters. In the overall event, she was ranked first which brought gold medal for her. She has also won a gold medal in Moguls and a silver in dual moguls in the 2015 World Championships.

## Hannah Kearney

Hannah Kearney is an American skier who has taken part in three Olympics. In 2006 Olympics she could not win any medal but in the 2010 Olympics she won a gold medal.

Here she has to compete with Shannon Barhke and Jennifer Heil. In the 2014 Olympics, she won a bronze medal.

She has won both the Olympic medals in mogul event. In World Championships, she has won three golds, two silvers, and three bronzes.



## Jennifer Heil

Jennifer Heil is a Canadian freestyle skier who won many medals in Olympics as well as World Championships.

She won a gold medal in 2006 Winter Olympics and a silver medal in 2010 Winter Olympics. Heil also took part in the 2002 Winter Olympics but could not win any medal.

Then she consecutively won World Cups in 2003-04, 2004-05 and 2005-06 seasons. In 2009-2010 season, she won four freestyle World Cups.

## Alisa Camplin

Alisa Camplin is a freestyle skier from Australia who is a gold medallist of the 2002 Winter Olympics. In 2006, she won a bronze medal in Olympics. In spite of injury and against doctor's advice, she took part in 2002 Winter Olympics and won a gold.

After winning a bronze medal in 2006 Olympics, she announced her retirement. After retirement she joined IBM as a motivational speaker. Along with this, she also does charity work.

## Kirstie Marshall

Kirstie Marshall is an Australian skier who has won 40 World Cup medals which includes 17 gold medals. She started skiing at the age of four and with her siblings she became a regular skier. She joined Team Buller in 1987 which is a freestyle skiing team.

In 1988, she took part in Australian Freestyle competition and got the first rank. She won the first world cup in 1990 and was crowned as the World Champion in 1992 as she has won six World Cups. In 1998, she won her 17<sup>th</sup> gold medal.