



# Bobsleigh



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## About the Tutorial

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Bobsleigh is a winter game which involves two or four players sleighing in a specially designed track. It has been included in winter Olympics since the first winter games held in 1924.

It is also termed as the most expensive winter Olympic game because of its equipment costs and the technical complexity involved in building them. This tutorial will let you know about the basics of this Bobsleigh.

## Audience

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People who are looking for sports that involve speed, power, balance, and a hundred percent focus, can opt for Bobsleigh. This tutorial is meant for those who don't have enough knowledge in Bobsleigh but still are passionate enough to learn it.

This tutorial will help people learn the basic rules and strategies involved in Bobsleigh.

## Prerequisites

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Before starting Bobsleighbing, a player needs to take care of certain factors. It requires a perfect balance of speed, power and weight is required. A player has to focus completely throughout the game, as the sleighs move at very high speed. The players need to be prepared for the low temperature environment of the race track.

The players need enough muscle and leg power in order to provide a powerful boost to the sleigh with full speed. They again need to stay lean, as the weight on the sleigh affects the speed and reduces the wind resistance.

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## **Table of Contents**

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About the Tutorial.....	1
Audience .....	1
Prerequisites .....	1
Copyright & Disclaimer.....	1
Table of Contents .....	2
<b>1. BOBSLEIGH – OVERVIEW.....</b>	<b>3</b>
<b>2. BOBSLEIGH – RACE TRACKS.....</b>	<b>5</b>
<b>3. BOBSLEIGH – EQUIPMENT .....</b>	<b>6</b>
<b>4. BOBSLEIGH – HOW TO PLAY? .....</b>	<b>9</b>
Moving the Sleigh .....	9
Boarding the Sleigh .....	10
Basic Techniques .....	10
Women Bobsleighbing .....	11
<b>5. BOBSLEIGH – RULES.....</b>	<b>12</b>
Rules regarding Runners .....	12
Rules regarding the Track.....	13
Rules regarding Weight .....	13
Rules regarding Safety.....	14
Rules regarding Winning .....	14
<b>6. BOBSLEIGH – CHAMPIONS .....</b>	<b>15</b>

# 1. Bobsleigh – Overview

Bobsleigh is a winter game where two or four players slide on a specially designed icy track using a sleigh that moves at a speed of around 135 km/hr. Considered as one of the high speed and risky sport, it provides ultimate thrill and entertainment to its spectators because of high speed sleighs and the competitive spirit of the game.

In this game, either two or four players drive the sleigh on the ice track and complete the race by providing the initial boost and then maintaining the speed as well as balancing the sleigh on the banked and icy track. Any three teams who complete the race are declared as winners.

## History of Bobsleigh

Bobsleigh was originated in Switzerland. In the late 19<sup>th</sup> century, the Swiss first started playing it by attaching two skeleton sleighs together with a steering mechanism added to the front sleigh in order to control the direction. The first races took place in normal snow covered roads.

The first bobsleighting club was founded in St. Moritz, Switzerland in 1897 and the first specially designed race track was developed outside of St Moritz in 1902. The initial sleighing tracks were straight built and later on twists and turns were added to it. Initially wooden sleighs were used for the gaming purposes which were replaced by steel sleighs.



In 1924, men's four-man bobsleighting was included in the first ever Winter Olympics and the two-man bobsleighting was included in the 1932 Winter Olympics. The women's bobsleighting began in US in 1983 and the two-woman bobsleighting made its debut in the 2002 Winter Olympic Games.

### Participating Countries

Bobsleigh is mostly played in European countries along with North America and Russia because of the proper climate for the icy track. Germany and Switzerland have been the most successful bobsleighbing nations based on their successful track record in all formats of competitive sports including World Cups and Olympic Championship.

Until 1950s, USA was leading the sport because of its technical innovations. However, presently Germany has won most Olympic medals in Bobsleighbing followed by Switzerland and United States. Presently, more than 50 countries take part in various bobsleighbing events all over the world.



Some of the countries where Bobsleighbing is very popular include Germany, Switzerland, USA, Canada, Russia, Great Britain, France, Latvia, Belgium, Romania, and Austria.



## 2. Bobsleigh – Race Tracks

A specially built narrow track is used in bobsleigh. These tracks are tilted at corners to give the desired speed boost to the players. The tracks are mostly made up of concrete and are filled with snow and ice. These tracks look like narrow tunnels with lots of twists, turns, and slopes. The lengths of these turns are around 1200 to 1600m and consists of at least fifteen curves.

There are total seventeen bobsleigh tracks available worldwide. These tracks are made of reinforced concrete and are piped with ammonia refrigeration to keep the track cool. The only exception is the track present at St Moritz, Switzerland, which is naturally refrigerated.



The track consists of narrow straightaway and curves which have deviation starting from smaller angles to 360 degree. These curves are banked almost 6 meters high above the ground where the racers can experience pressures that is four times the pressure of gravity.

### 3. Bobsleigh – Equipment

Bobsleigh is considered as the most expensive winter sports as the equipment used in it, including the safety equipment as well as bobsleigh parts, are quite costly. The most important equipment in bobsleighbing is the sleigh. Besides this other protective guards are also used. All these equipment are described as follows:

#### Sleigh

The sleighs, also known as sled or sledge, used in the beginning were made of wood but modern day sleighs are made of steel, light metals and fibre glasses. The length of the sleigh must be a maximum of 3.80 metres (12.5 ft) for four-man sports and 2.70 metres (8.9 ft) in case of two –man sports. Bobsleigh crews are supposed weigh heavy in order to ensure great possible speed.



The maximum weight of a sleigh including the crews is 630kg (for four -man), 390kg (for two-man) and 340kg (for two-woman) including the additional metal weights. The Bobsleighs are designed as light as it could be to ensure dynamic movement of the crews during the turns of the course.

Previously a team used to consist of five to six crews which were reduced to two or four crews in 1930s. A four-man crew consists of **a pilot, a brakeman and two pushers** whereas in case of two-man crew, only a pilot and a brakeman are there. The crew is selected based on their strength and speed as initially the crew needs to push the sleigh to provide the initial boost to it which is considered as the competitive speed of the sleigh for the rest of the course.



The pilot steers the sleigh along the correct path, which produces greatest speed whereas the brakeman applies the brakes wherever necessary. The pushers help in providing additional force while pushing the sleigh at the beginning. The parts of a sleigh are:

- A steel frame
- A fibre glass hull that is closed in the front and open in the backside
- A movable set of front runners (steel legs of the sleigh)
- A fixed set of rear runners
- Collapsible push-bars for drivers and crewmen
- Fixed push bar for brakeman
- A jagged metal brake used to provide brake after the finishing line is reached
- A steering system

In case of modern sleighs, the steering system consists of two metal rings that create a pulley at the forward cowling which is responsible for the movement of the front runners. It can move 3 inches left and right. The driver pulls the left ring to turn left and the right ring to turn right. The brake is located at the end of the sleigh liver in between the brakeman's knees. The equipment used are dependent on the playing environment as well as the rules of the game.

### Shoes

Shoes are made of synthetic materials. Specially designed shoes are used in bobsleigh. These shoes have spikes of maximum 4mm in size that are helpful during traction at the beginning of the game, when the player pushes the sleigh up to some distance in order to provide the initial boost.





### Push Handles

Many push handles are the on the sleigh itself which are used to push the sleigh at the beginning. The retractable side push handles are used to push the sleigh at the beginning.

### Helmets

Helmets are a must for the players because of security reasons. These helmets are usually made of high tech plastic composites and are mainly used to avoid head injuries. Some helmets have a visor for the player's eyes whereas others simply use goggles for eye protection.

## 4. Bobsleigh – How to Play?

In this chapter, we will discuss how to play this game.

### Moving the Sleigh

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There is no engine attached with the sleigh and it runs purely on push and gravity. The initial part of a bobsleigh track is a straightaway and is wide enough to allow the players to push the sleigh up to some distance which provides initial boost to the sleigh. The push-off takes around 6 seconds.

Every team focuses on explosive start and the initial push applied by the players later on provides the resultant speed to the sleigh throughout the game. So mostly players are chosen based on their physical abilities to push the sleigh as fast as possible. Initially, the players push the sleigh up to 50 metres and then board in to it one by one.



Once the push-off part is over, factors like gravity, momentum, condition of ice, aerodynamics, and the driver's skill set crucial roles in the speed of the sleigh. The brake man applies the brake to stop the sleigh at the end of the race.

## Boarding the Sleigh

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Initially, the pilot boards the sleigh and starts steering whereas the brakeman takes the last seat and controls the brake for the sleigh. In case of a four-man game, the other two players help in the initial push of the sleigh and then take the middle two seats and shift their weight during turns.

Heavier sleighs move faster than lightweight sleighs as gravity works as a main force behind the speed of the sleigh throughout the game. In case of reaching below the maximum occupied weight, the players add other heavy materials to their sleigh to meet the weight requirement. At the end of the race, the officials weigh the sleighs to make sure they meet the perfect weight requirements.



Once, on the course, the drivers try their best to steer the sleigh through the turns while preventing the sleigh from skidding into the walls. For a pilot, the greatest challenges lie during the turns where the pilot has to maintain the sleigh to run on a tight line in order to prevent it from drifting high on those turns which may cause accidents as well as slowing down the speed of the sleigh.

The front runners of the sleigh are blunt and are movable. The pilot steers these front runners in order to set the direction throughout the course. In order to reduce the friction between the sleigh and the ice, the runners are polished properly to make them smooth enough to slide on the ice with less friction.

## Basic Techniques

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The basic techniques followed in two-man and four-man types are very much similar. As weight plays a vital role in case of speed of the sleigh, so four-man sleighs are faster than two-man types. Also in case of four-man, extra initial boost is provided to the sleigh than the two-man type. Because of the increased speed and weight, four-man sleighs are harder to ride than the two-man sleighs.

## Bobsleigh

The race times are recorded in hundredths of seconds to make the final calculation error free. Even a simple mistake at the initial push-off or during the steering decisions of the driver during the turns may largely affect the final race. Air passing through the sleigh slows the sleigh down. In order to avoid these drags, wind tunnels are added in the sleigh.



## Women Bobsleighbing

In case of women bobsleighbing, the sleighs for women were very much similar to that of men. But with time so many problems came out as women are shorter than men and many players injured their hip as well as back which prompted the organisers to change the interior sleigh designs for women bobsleighbing.



## 5. Bobsleigh – Rules

Even though bobsleigh is a quite interesting game, the risks attached to it certainly cannot be avoided. Till now more than 93 players have died in crash or accidents during the game. In order to reduce the chances of accidents and to prevent the risks, officials have made certain rules and regulations about the uses of sleighs and the structure of the track.



### Rules regarding Runners

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The runner that slides on the ice during the race has specific sets of rules regarding its shape, structure, and temperature. The blades are made of homogeneous steel. Based on the governing rules, the shape of these runners has to be rounded instead of being sharp in order to avoid unnecessary accidents.

Mostly these accidents are caused by overturning the front runners by the driver. For safety measures, the construction of runners have to follow standard rules about length and widths set for it. They can be polished in order to avoid friction but cannot be narrow as they support the whole sleigh.

Coating the runners in order to increase the speed of the sleigh during the race is allowed. However, the temperature of these runners has to be between some degrees. Prior to the competition, the temperatures of these runners are measured and if the temperature differs than the standard temperature by more than 4 degrees, the particular crew will be disqualified for the game.





### Rules regarding the Track

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Strict guidelines have been made for the race track to prevent accidents and risks as much as possible. The length of the tracks remains between 1200 to 1300 metres and it has to be designed in such a way that the speed of 80m/hr to 100 m/hr can be reached in the first 250 metres. The race course elevation drops from 110 to 125 metres over the distance.

The track design have to be in such a way that it must slope downhill. The overall race course must contain one straightaway and one labyrinth which includes three quick turns in succession. The bobsleighs have to be designed in such a way that it must be able to withstand strong impacts on walls and curbs. They are mostly made of steel frames and fibre glass with collapsible bars for the crew.

### Rules regarding Weight

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At the end of each race, the sleigh runners go for weight as well as other specification tests by the sports officials in order to ensure they are abiding by all rules. At the end of the race, if any player is found to be illegally more warmed or coated with silicone for better glide, he/she may be disqualified from the game.

The crew have to follow the weight guidelines that is 630kg for four -man, 390kg for two-man and 340kg for two-woman, neglecting which will result in disqualification from the game. The players have to use strong uniform and protective gear guidelines in order to stay safe.

## Rules regarding Safety

The players need to wear high tech plastic made helmets in order to prevent head injuries as well as goggles for eyes. Racers wear tight uniforms to increase aero-dynamicity and spiked shoes to gain traction on the ice. The brakeman wears a Kevlar vest in order to avoid third degree burning during the sleigh's friction with ice.



The next bobsleigh doesn't start until the previous team has left the track because of security reasons. At the end of the game, the time for each of the four/two runs by the team get added and the team with lowest time to complete the race wins the game.

## Rules regarding Winning

If the sleigh is turned upside down but reaches the finishing point and the team members are still inside the sleigh, then the race qualifies. In case of any of these team members get thrown away from the sleigh, the whole crew gets disqualified for the game.

Teams that appears first always gain advantage as later on more scratches appear on the track that increase the friction between the sleigh and the ice later on. For Olympics and World Championships, every team makes four runs whereas in case of World Cup, two runs are made by each team.

## 6. Bobsleigh – Champions

The **International Bobsleigh and Skeleton Federation** (IBSF), also known by its French name **Fédération Internationale de Bobsleigh et de Tobogganing** (FIBT) is the international sports federation as well as the governing body for bobsleigh and skeleton. As of 2007, it works as a parent association to 14 national bobsleigh and skeleton associations.



### **International Bobsleigh & Skeleton Federation**

IBSF was founded on November 23, 1923 by delegates from France, Switzerland and Great Britain along with representatives from USA and Canada in Paris, France. Its head quarter is in Lausanne, Switzerland. There are 14 tracks all over the world which are used for IBSF competitions.

The championships that are organized by IBSF are:

- Bobsleigh Winter Olympics
- Bobsleigh World Cup
- FIBT World Championships

Bobsleigh is a sport where the players with a team of two or four members slide on a sleigh. The team that completes the race with less time is the winner. Let us now have a brief synopsis on some of the champions of Bobsleigh and their careers.

### Alexey Voyevoda

Alexey Voyevoda is a bobsleigh player from Russia who is also an arm wrestler. He was the champion of 2014 Winter Olympics where he won both two-man and four-man events. He started his career in bobsleighbing in 2002 and won a silver medal in 2006 Winter Olympics.

In 2008 FIBT World Championships, he won a bronze medal in two-man event. In 2010 Winter Olympics, Alexey won a bronze medal. He was awarded with **The Order For Merit to the Fatherland Award** by Vladimir Putin.



### Alexandr Zubkov

Alexandr Zubkov is a Bobsleigh player from Russia who has won medals in four Olympics. He also won medals in FIBT World Championships where he won one silver in 2005 in two-man event, one silver in 2008 in four-man event and two bronzes in 2008 in Bobsleigh World Cup.

In 2014 Winter Olympics, he won gold in both two-man and four-man events. He was awarded with **The Order For Merit to the Fatherland Award** by Vladimir Putin. He retired in 2014 due to long time injury and did not take part in further competitions.



### Steve Mesler

Steve Mesler is a Bobsleigh player from America who is a gold medallist in Olympics. He won his first gold medal in 2010 Olympics where he was a pusher for Steve Holcomb.

In 2009, he participated in four-man event in FIBT World Championships and won two medals. He was inducted in **National Jewish Sports Hall of Fame** and **Buffalo Sports Hall of Fame** in 2011.





### Steven Holcomb

Steven Holcomb is a Bobsleigh player from America who won a gold medal in 2010 Winter Olympics in the four-man event. Holcomb started his career as an alpine skier but later he started competing in bobsleighbing. In 2004-2005 season, Holcomb was ranked second and third American driver.

In 2006-2007 season he won two-man World Cup Championship. In 2009, Holcomb won a gold in four-man and three bronzes in two-man events in FIBT World Championships. Holcomb has also won 2007 and 2010 Combined World Cup titles along with four-man World Cup title in 2010.



### Heather Moyse

Heather Moyse is a Bobsleigh player from Canada. She is also a track cyclist and rugby union player. Moyse started her bobsleigh season in 2005-2006 and won four medals in World Cup circuit.

In 2007-2008 season, Moyse won a silver and a bronze medal. In 2009-2010 season, she again won a gold in World Cup. In 2010 Winter Olympics, she won a gold in two-woman event. In 2014 Winter Olympics, she again won a gold medal in two-woman event.



### Kaillie Humphries

Kaillie Humphries is a bobsleigh player from Canada who won gold medals in 2010 and 2014 Winter Olympics. Along with this, she has won 28 FIBT World Cup medals and seven FIBT World Championships. She is also awarded with 2014 Lou Marsh Award for being the top athlete. Humphries started her bobsleigh career in 2002 as a brakeman.

In 2008 FIBT World Championships, she won a silver medal. After 2010 Olympics, she was not much successful in World Championships. In 2011-2012 World Cup season, she won a gold medal. She also won 2012-2013 Bobsleigh World Cup and 2013 FIBT World Championship.





### Elana Meyers

Elana Meyers is a bobsleigh player from America who started her career in 2007. In 2009 FIBT World Championships, she won a silver medal. In 2010 Winter Olympics, she won a bronze medal. In 2013 FIBT World Championships, she won a silver medal.

She also won a silver medal in 2014 Winter Olympics. In 2015, she won a gold medal for her country in World Championship. Along with this, she also led mixed gender team and attained a third place in US trials.



### Shauna Rohbock

Shauna Rohbock is a bobsleigh player from America who is also a soccer player. In 2006 Winter Olympics, she won a silver medal in the two-woman event. She also won a silver medal in 2006-2007 season in Bobsleigh World Cup.

She won first world cup in 2006 in Calgary race followed by second win in the same year. In 2005 and 2007 World Cup, she won bronze medals whereas in 2009 World cup, she won a silver medal in two-woman event and a bronze medal in mixed team event.

