

FIS Injury Surveillance System

Injury Data (2006-2019)

About the Data

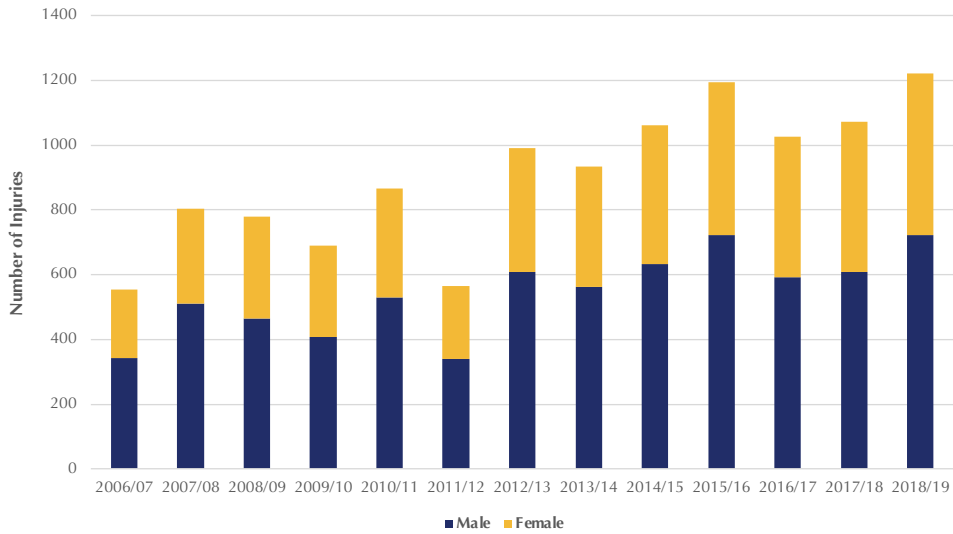
The FIS ISS was developed prior to the 2006/07 season by FIS in collaboration with the Oslo Sports Trauma Research Center (OSTRC). Athletes were interviewed by research teams at final World Cup events each season. The interviews captured injuries sustained in training and competition during the 5-month season that required attention by medical personnel, yet injuries reported with no absence from training or competition are also included in the total count.

This report synthesises injury data from the FIS Injury Surveillance System (FIS ISS) spanning 13 seasons (2006–2019). Across this period, researchers interviewed **11,757 athletes** and documented **3,950 injuries** requiring medical attention. The surveillance covers Alpine Skiing (World Cup and European Cup), Freestyle Skiing, Snowboarding, and Ski Jumping. It should be noted that the injuries in this report do not represent the total number of injuries in the World Cup, but only those occurring to the athletes covered by the interviews.

The Big Picture Across All Snow Sports

Sex Differences

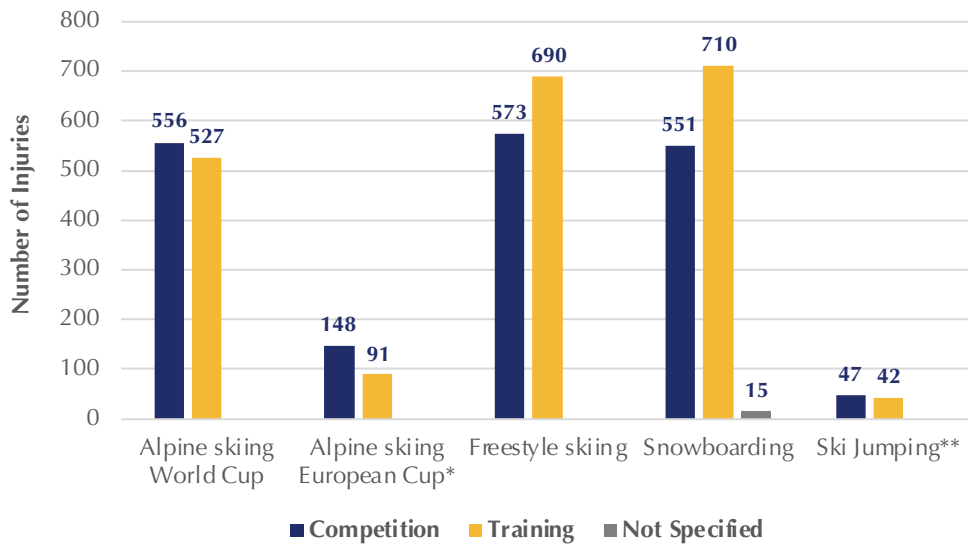
When we break the number of athletes down by sex across all disciplines, the overall split is **60% male and 40% female**, with some variations depending on the discipline. Alpine Skiing is the most balanced ratio among the disciplines (55:45), whereas the rest of the disciplines show a wider gap (approximately 65:35). Of note, Women's Ski Jumping only entered the surveillance from 2014/15, reflecting the sport's history as Women's Ski Jumping was first included in the Winter Olympics in Sochi 2014.



	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	TOTAL
Male	343	511	464	408	530	339	609	562	633	722	592	608	723	7051
Female	212	293	314	283	336	225	381	373	428	473	435	463	497	4713

Where Injuries Happen

Training is the dominant setting, accounting for approximately **52% of all injuries (2,060/3,950)**. The remaining injuries occur across World Cup events, other competitions, and major championships including the Olympics. Within disciplines, the burden is highest in Snowboarding (55.6%) and Freestyle Skiing (54.6%). This finding carries a clear message: the cumulative exposure during training creates the majority of the injury burden, therefore prevention strategies should be embedded in daily practice, not reserved for race day alone.



*Alpine Skiing European Cup includes data from 6 seasons (2013-19)

** Ski Jumping includes data from 5 seasons only (2014-19)

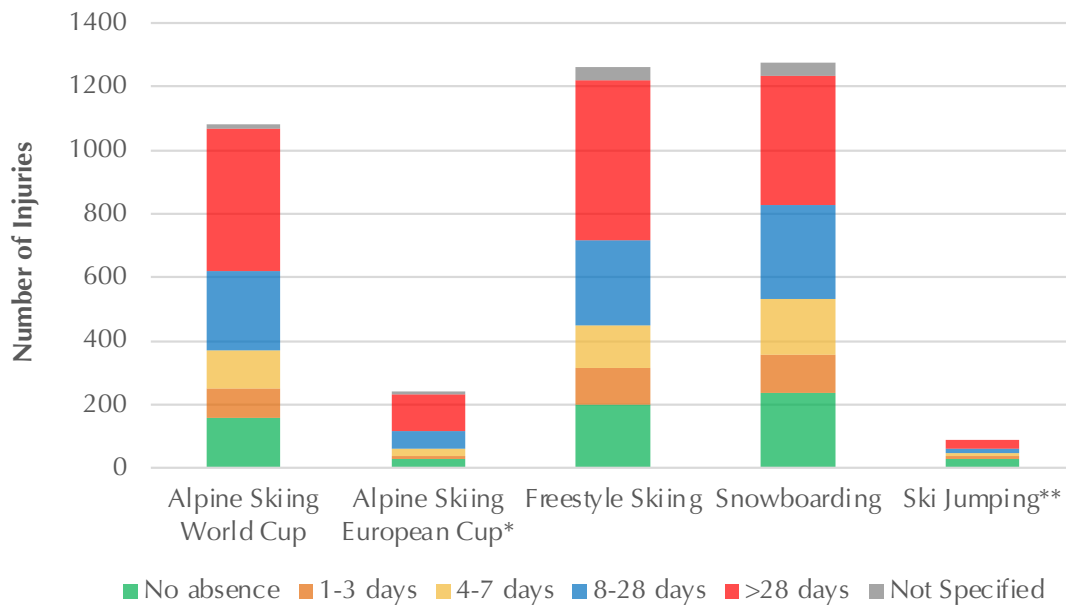
How Serious Injuries Are

Severe injuries (>28 days absence) represent **38% of all injuries (1,500/3,950)**. This is not a trivial proportion, roughly one in three to four injuries sidelines an athlete for more than a month. Shorter time-loss categories (1–28 days) together account for slightly over 40%, while approximately 16% of injuries require medical attention but do not result in time away from participation.

Body Region	No Absence	1-3 Days	4-7 Days	8-28 Days	> 28 Days*
Head/Face	12.3%	10.7%	21.7%	32.9%	22.4%
Neck/Cervical	36.4%	15.9%	6.8%	15.9%	25.0%
Shoulder/Clavicle	18.3%	8.7%	14.1%	22.0%	36.9%
Upper Arm	7.1%	3.6%	3.6%	17.9%	67.9%
Elbow	21.7%	18.3%	8.3%	20.0%	31.7%
Forearm	9.4%	12.5%	15.6%	6.3%	56.3%
Wrist	32.7%	12.1%	14.0%	18.7%	22.4%
Hand/Finger	45.2%	12.1%	10.3%	22.4%	10.0%
Chest/Ribs	20.3%	17.2%	10.9%	25.8%	25.8%
Abdomen	5.3%	15.8%	31.6%	21.1%	26.3%
Back/Pelvis	21.2%	14.2%	17.7%	24.1%	22.9%
Hip/Groin	23.8%	13.1%	14.6%	24.6%	23.8%
Thigh	26.8%	10.7%	7.1%	28.6%	26.8%
Knee	7.6%	4.8%	6.4%	18.5%	62.7%
Lower Leg/Achilles	15.2%	6.4%	6.9%	19.1%	52.5%
Ankle	10.5%	9.0%	16.2%	29.2%	35.0%
Foot/Toe	24.1%	8.0%	6.3%	27.7%	33.9%
TOTAL	16.4%	9.0%	11.6%	22.3%	38.0%

* >28 days: Severe injury

Across all disciplines, Alpine Skiing (European Cup) shows the highest burden of career-interrupting injuries, with **48.6%** of all recorded injuries resulting in >28 days of absence. In contrast, Snowboarding shows a more distributed profile, with a higher proportion of minor injuries (No absence) compared to the skiing disciplines.

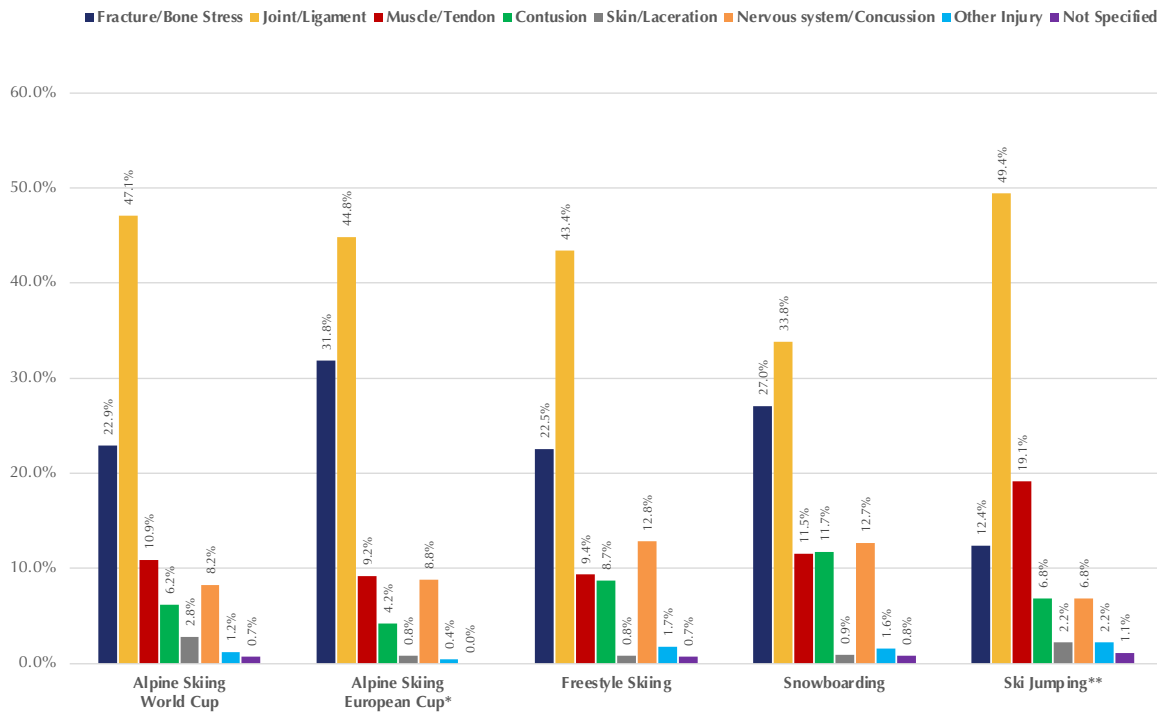


**Alpine Skiing European Cup includes data from 6 seasons (2013-19)*

***Ski Jumping includes data from 5 seasons only (2014-19)*

What Kinds of Injuries Occur

Joint and ligament injuries are the largest category at approximately **42% (1,640/3,950)**. Fractures and bone stress injuries follow at **24% (964/3,950)**. Concussions and nervous system injuries account for **11% (440/3,950)**. Muscle and tendon injuries contribute another 11%, with contusions at approximately 9%.



*Alpine skiing European Cup includes data from 6 seasons (2013-19)

**Ski Jumping includes data from 5 seasons only (2014-19)

Across disciplines, **ligaments** are the primary injury across **skiing disciplines (47.1 and 44.8%)**, **Snowboarding** has the **highest fracture risk (27.0%)** compared to other disciplines and also leads in contusions (11.7%). Lastly, Ski Jumping shows a uniquely high rate of muscle/tenon injuries (19.1%), nearly double that of Alpine Skiing (10.9%).

Where on the Body

The **knee** stands out as the single most common injury location at **30% (1,180/3,950)**. Other frequently injured regions include head and face (12%), shoulder and clavicle (11%), lower back and pelvis (9%), hand, finger, and thumb (7%), and ankle (7%).

Body Region	Alpine Skiing (WC)	Alpine Skiing (EC)	Freestyle Skiing	Snowboarding	Ski Jumping
Head/Face	9.4%	8.8%	14.2%	13.5%	9.0%
Neck/Cervical	0.7%	0.0%	1.4%	1.6%	1.1%
Shoulder/Clavicle	6.1%	5.0%	12.0%	14.3%	3.4%
Upper Arm	0.6%	0.4%	0.5%	1.0%	0.0%
Elbow	0.6%	0.8%	1.8%	2.2%	1.1%
Forearm	0.5%	0.4%	0.6%	1.3%	1.1%
Wrist	1.2%	2.9%	2.2%	4.6%	3.4%
Hand/Finger	9.7%	13.4%	6.3%	5.6%	0.0%
Chest/Sternum	1.7%	1.7%	4.0%	4.7%	1.1%
Abdomen	0.5%	0.4%	0.5%	0.7%	0.0%
Lower Back/Pelvis	9.2%	8.4%	7.0%	10.7%	9.0%
Hip/Groin	2.1%	1.7%	4.5%	3.3%	9.0%
Thigh	2.1%	1.3%	1.4%	1.0%	0.0%
Knee	41.3%	36.0%	32.1%	16.1%	41.6%
Lower Leg/Achilles	9.0%	9.6%	3.7%	2.9%	3.4%
Ankle	3.8%	7.1%	5.3%	11.2%	14.6%
Foot/Toe	1.4%	2.1%	2.3%	5.3%	1.1%

This highlights the *fingerprint* of each sport. Alpine Skiing and Ski Jumping are clearly *knee sports* (large red segments), while Snowboarding displays a much more distributed pattern with significant upper body (shoulder, wrist) and ankle involvement.

Practical Takeaways for the Snow Sports Community

1. Knee Injury Prevention Belongs at the Centre of the System

Every discipline shows the knee as the number one or near-number one injury location. In alpine skiing and ski jumping, the knee accounts for more than 40% of all injuries.

2. Training Is Where Most Injuries Occur

More than half of all injuries happen during training. Prevention cannot be a race-day afterthought, it needs to be embedded in daily training and management. The cumulative exposure during training far exceeds competition exposure, and the data reflects this reality.

3. Severe Injuries Are Not Rare

Roughly one in three to four injuries leads to more than 28 days of absence. When athletes get hurt in snow sports, they are frequently sidelined for significant periods. Risk management should

therefore target "high-consequence" scenarios (falls, awkward landings, collisions) where prevention efforts can have the greatest impact on reducing serious time loss.

Conclusion

The ultimate objective of the FIS Injury Surveillance System is to **reduce injury risk** among athletes. Thirteen seasons of systematic injury surveillance provide a robust foundation for understanding injury patterns in elite snow sports. The data confirm that knee injuries are the universal challenge across skiing disciplines, that training environments carry the majority of the injury burden, and that severe injuries are common rather than exceptional. At the same time, the data reveal meaningful differences between disciplines. These *injury fingerprints* should guide the allocation of prevention resources.