

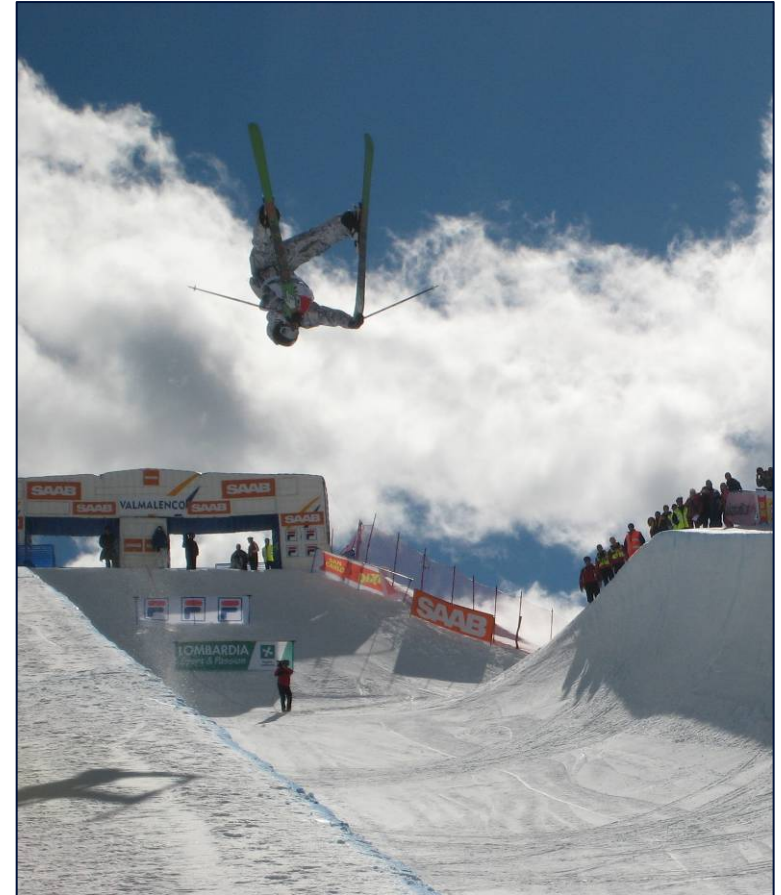
FIS Injury Surveillance System - FIS ISS



FIS Injury Surveillance System?



- System to monitor injury risk continuously

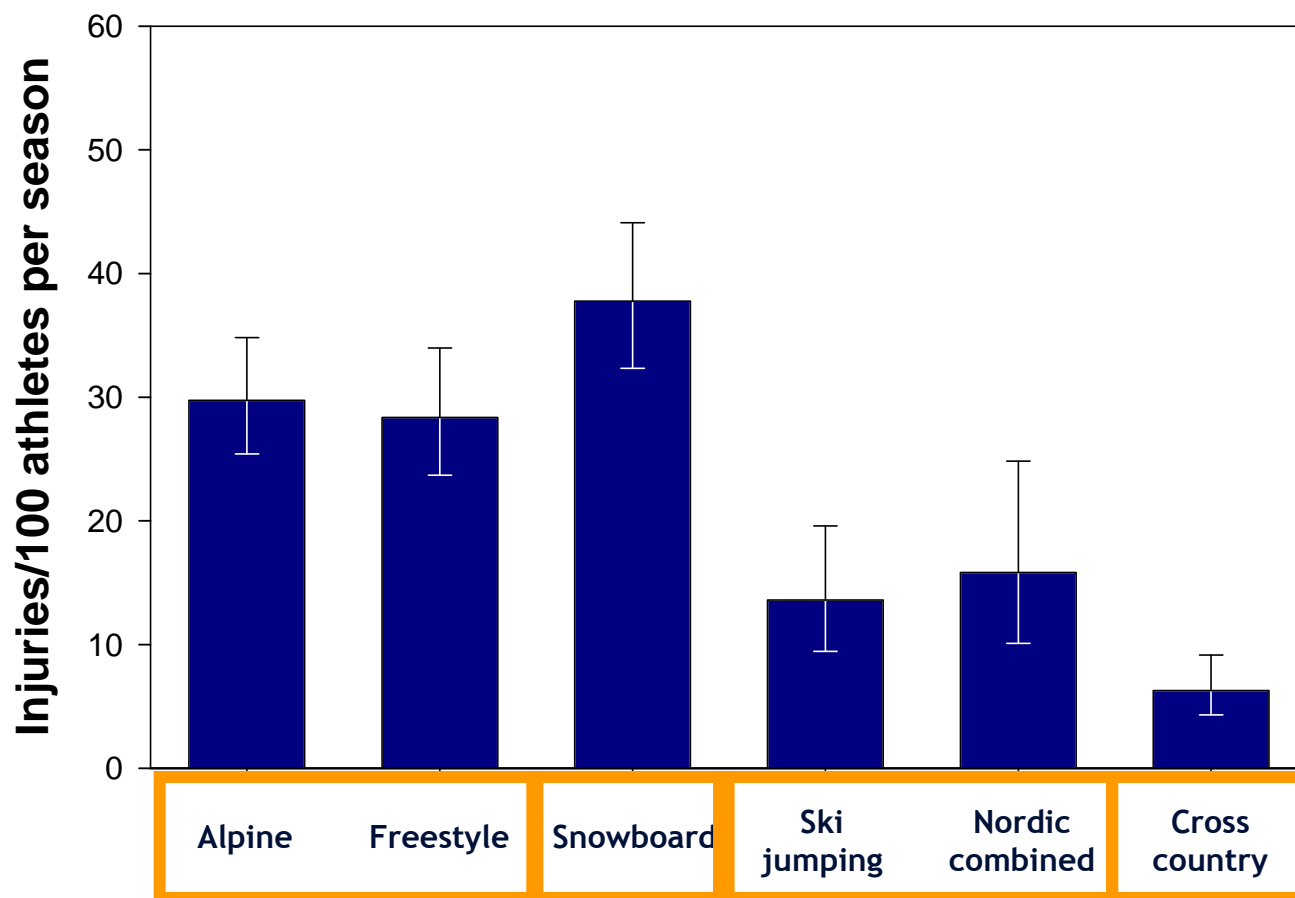


Why is it important?



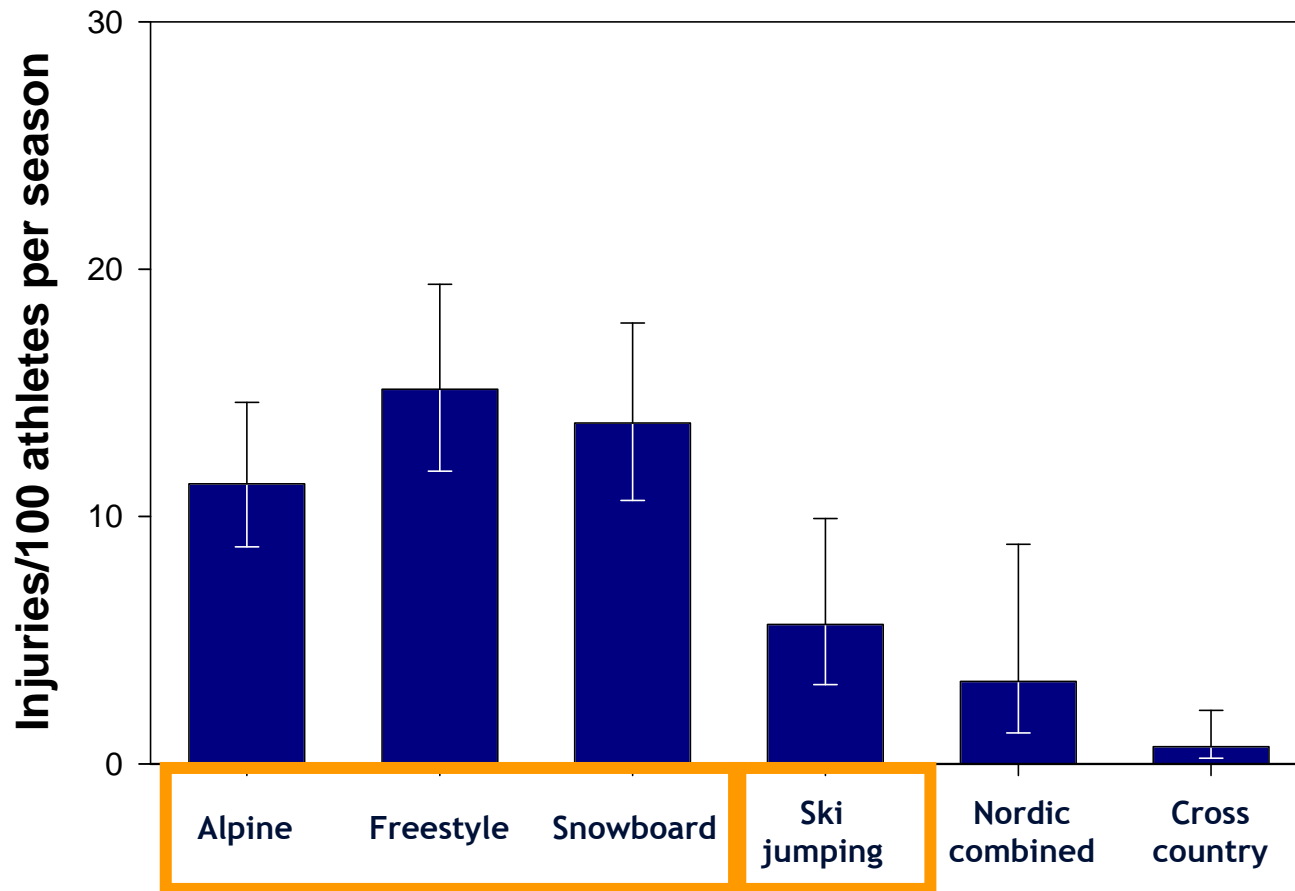
Time loss injuries ≥ 1 day

n=507



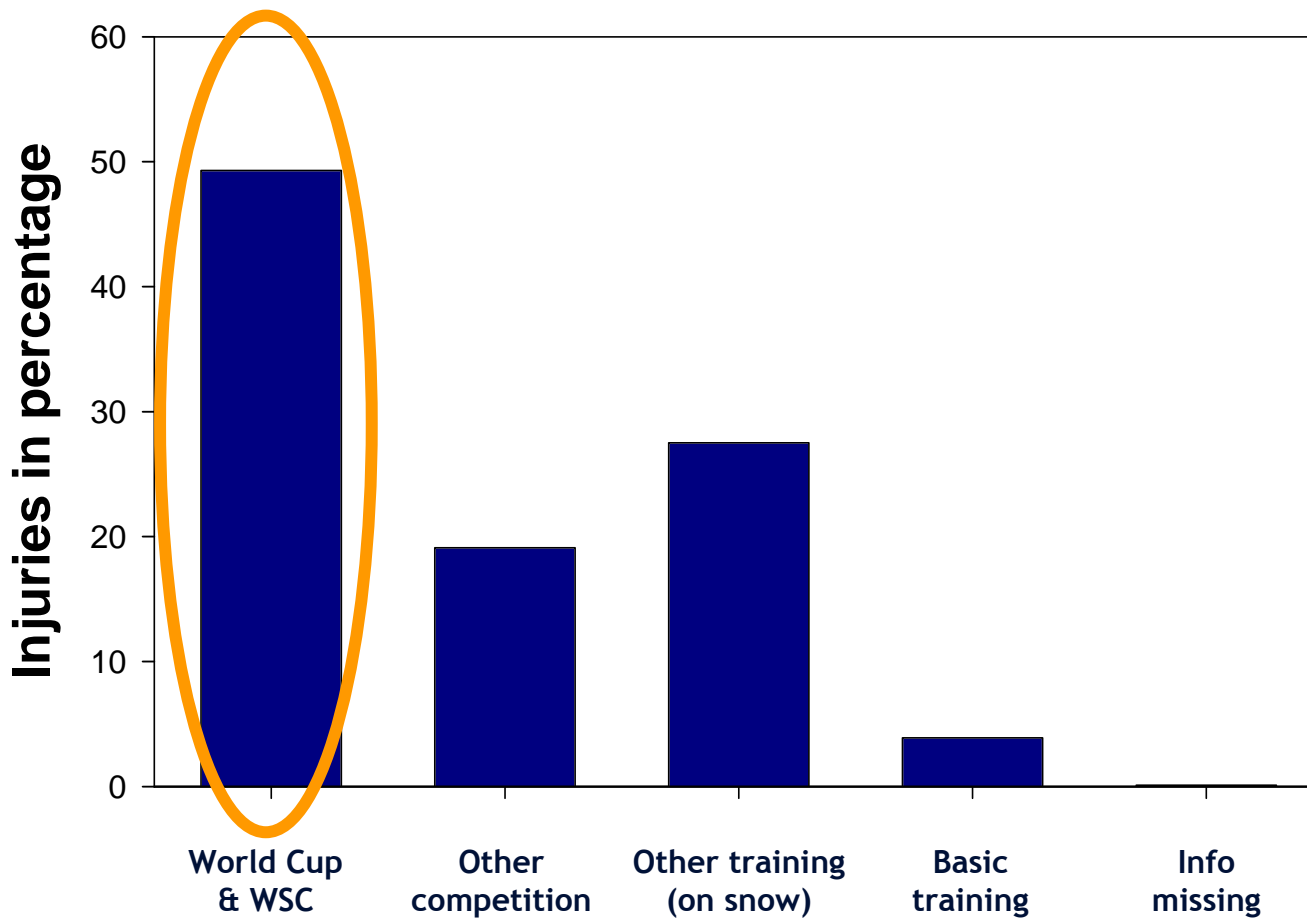
Severe injuries >28 days

n=199



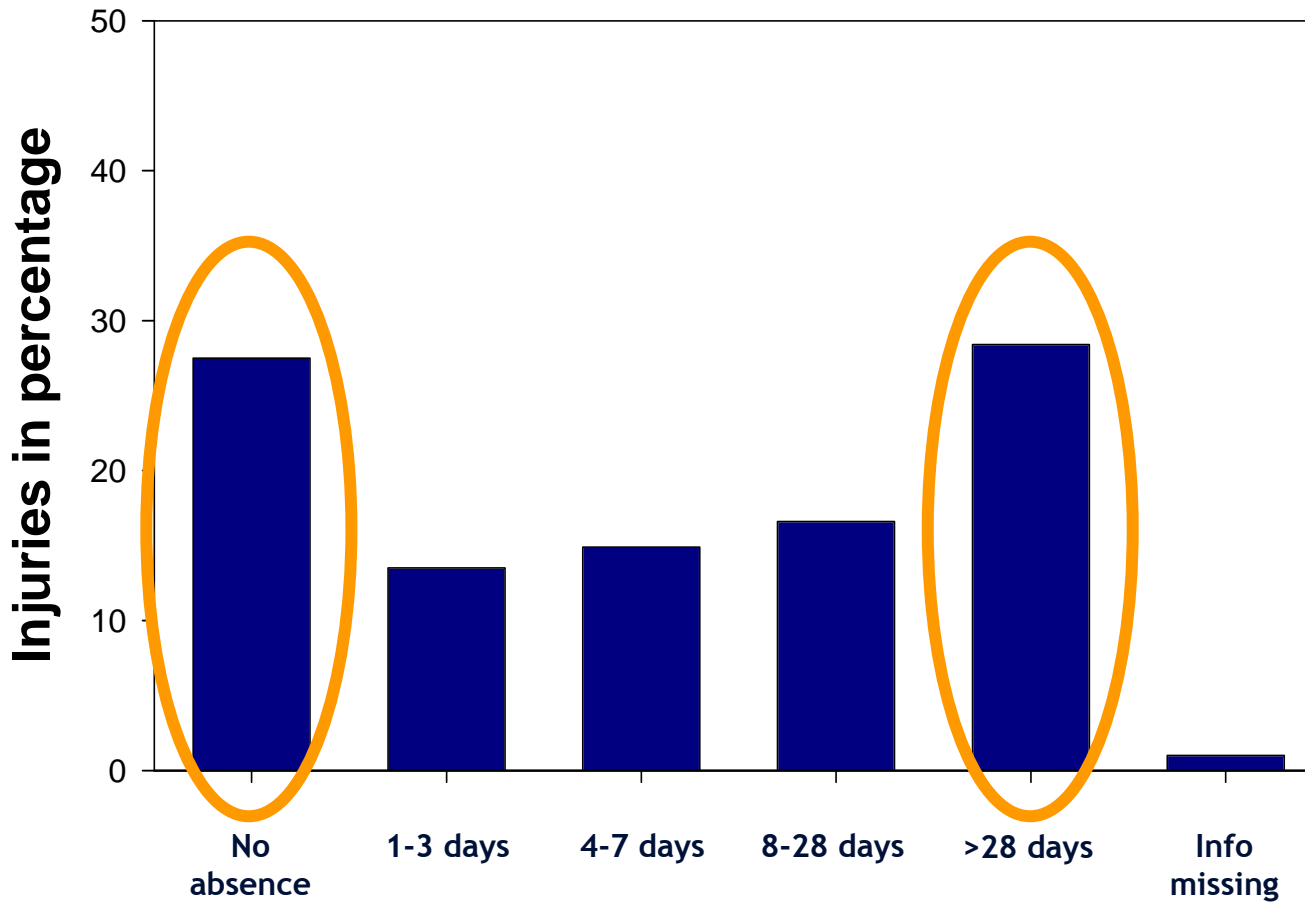
Where do the injuries happen?

All injuries (n=710)



Severity

All injuries (n=710)



What kind of injuries?

2006-07 & 2007-08



	All injuries (n=710)						
	0	1-3	4-7	8-28	>28	Missing	Total
Head/face	19	6	23	10	17		75
Neck	3	1		1		1	6
Shoulder/clavícula	21	6	10	15	22	1	75
U.arm/elbow/f.arm	12	4	7	5	10		38
Wrist	10	1	3	1	5	1	21
Hand/finger/thumb	25	4	4	4	4		41
Chest/Abdomen	7	5	6	6	4		28
Lower back	25	11	16	14	10		76
Hip	6	3	3	4	11	1	28
Thigh	10	2	2	2	2	1	19
Knee	28	15	16	41	83	1	184
Lower leg/Achilles	15	5	3	11	11	1	46
Ankle	8	5	12	15	14	1	55
Foot/heel/toe	5	1		5	6		17
Info missing	1						1
Total	195	69	105	134	199	8	710

Injury types

2006-07 & 2007-08



	All injuries (n=710)							
	Fractures	Joint and ligament	Muscle and tendon	Contusions	Skin and laceration	Nervous syst/ concussion	Other	Total
Head/face	5			6	6	56	2	75
Neck		2	4					6
Shoulder/clavícula	12	50	10	3				75
U.arm/elbow/f.arm	13	13	4	6			2	38
Wrist	9	9		3				21
Hand/finger/thumb	25	14	1	1				41
Chest/Abdomen	8	2	5	11			2	28
Lower back	6	11	24	21	1	10	3	76
Hip	5	1	9	11	1		1	28
Thigh	1		15	3				19
Knee	10	144	11	13	5		1	184
Lower leg/Achilles	13	2	10	13	1		7	46
Ankle	7	47					1	55
Foot/heel/toe	6	2	1	6			2	17
Info missing				1				1
Total	120	297	94	98	14	66	21	710

Ski jumping and knee injuries...



- 76 ♂ and 70 ♀ interviewed
- Serious knee injuries last 4 seasons
- 11 of 70 (16%) of ♀ jumpers (all during SJ)
- 6 of 76 (8%) of ♂ jumpers (4 during SJ)



Unfortunately



- TD reported 2006-07
 - 36% of time loss injuries
 - 58% of >28 days
- TD reported 2007-08
 - 39% of time loss injuries
 - 62% of >28 days

Please remember



- TD reports are our only record of injuries during WC and other FIS events!



What we are asking



- TDs to complete an injury form for all injuries
- Enlist the assistance of the official race doctor(s) whenever possible - before the start of the race!

“All injuries that occur during official training or competition and require attention by medical personnel”

FIS FÉDÉRATION INTERNATIONALE DE SKI
INTERNATIONAL SKI FEDERATION
INTERNATIONALER SKI VERBAND **FIS**

Injury report / Verletzungsmeldung / Rapport de blessure

All injuries that occur during official training or competition and require attention by medical personnel should be reported! Alle Verletzungen, die während des offiziellen Trainings oder des Wettkampfs auftreten und Betreuung durch medizinisches Personal erfordern, sollten gemeldet werden! Toutes les blessures qui se produisent pendant l'entraînement officiel ou la compétition et qui nécessitent l'attention du personnel médical doivent être rapportées.

Event information/ Informationen zum Bewerb/Information sur l'événement
Discipline/ Disziplin/Discipline: _____

Athlete information/ Informationen zum Athleten/Données sur l'athlète
Name/ Name/ Nom: _____ FIS Code: _____
Country/ Land/Pays: _____ Gender/ Geschlecht/ Sexe: _____
Date (DD MM YYYY)/ Datum/Date: _____ Birth date (DD MM YYYY)/ Geburtsdatum/ Date de naissance: _____

Injury information/ Information zur Verletzung/Information sur la blessure
To be completed in collaboration with event or team medical staff (if possible) / à compléter en collaboration avec le personnel médical de l'événement ou de l'équipe (si possible)

Body part injured/ Verletzter Körperteil/Partie du corps blessée:

Head/face/ Kopf/Gesicht/Visu-Face
Neck-cervical spine/ Nacken-Halswirbel/Waage-Verläufe cervicale
Shoulder-clavicular/ Schulter-Schlüsselbein/Epaule-Clavicule
Upper arm/ Oberarm/ Bras
Elbow/ Ellenbogen/Coudes
Forearm/ Unterarm/avant-bras
Wrist/ Handgelenk/Poignet
Hand-finger/thumb/ Hand-Finger-Daumen/Main-Doigt-Pouce
Chest (sternum-rib-upper back)/ Brustkasten (Brustbein-Rippen-Brustwirbelsäule)/Thorax (Sternum-Côtes-Heul du dos)
Abdomen/ Bauch/Abdomen
Lower back/pelvis-sacrum/ Lendenwirbelsäule-Becken-Kreuzbein/Sacrum
Hip- groin/ Hüfte-Leiste/Hanche-Aîne
Thigh/ Oberschenkel/Cuisse
Knee/ Knie/Knien
Lower leg-Achilles tendon/ Unterschenkel-Achillessehne/Umbo-tendon/Talite
Ankle/ Fußgelenk/Cheville
Foot-heel-toe/ Fuss-Ferse-Zehen/Fuß-Talon-Otels
Information not available/ Information nicht verfügbar/Information non disponible

Injury type/ Art der Verletzung/Gène de la blessure:

Fractures and bone stress/ Fractures und Ermüsungsgrenze/Fracture et fissure de fatigue
Joint (non-bone) and ligament/ Gelenke (nicht Knochen) und Bänder/Joint (articulation) et ligament
Muscle and tendon/ Muskel und Sehnen/Muscle et tendon
Contusions/ Quetschungen/Contusions
Laceration and skin lesion/ Abschunden und Hautverletzung/lac et lésion de la peau
Nervous system including concussion/ Nervensystem inkl. Gehirnerschütterung/Système nerveux y compris contusion cérébrale
Other/ Anderes/Lesures
Information not available/ Information nicht verfügbar/Information non disponible

Expedited absence from training and competition/ Voraussetzliche Abwesenheit von Training und Wettkämpfen/Prévision d'absence à l'entraînement et en compétition:

No absence/ Keine Abwesenheit/absence
1 to 3 days/ 1 bis 3 Tage/1 à 3 jours
4 to 7 days/ 4 bis 7 Tage/4 à 7 jours
8 to 28 days/ 8 bis 28 Tage/8 à 28 jours
>28 days/ >28 Tage/>28 jours
Information not available/ Information nicht verfügbar/Information non disponible

Side/ Seite/Part: Right/ Rechts/Drohe Left/ Links/Gauche Not applicable/ Nicht anwendbar/Non applicable

Specific diagnosis (if available) / Genaue Diagnose (wenn verfügbar)/Diagnostic spécifique (si disponible): _____

Note: If there are multiple injuries resulting from the same accident, please describe the most serious injury above and the less serious injuries here! Anmerkung: Wenn aus dem gleichen Unfall mehrere Verletzungen resultieren, bitte beschreiben sie die schwereren Verletzungen oben und die leichteren Verletzungen hier! Note: Si y a des blessures multiples résultant du même accident, veuillez décrire les blessures les plus sérieuses ci-dessus et les blessures moins sérieuses ci-dessous.

Contact information to obtain further medical information/ Kontakt für weitere medizinische Informationen/Contact pour obtenir des informations médicales supplémentaires:
Name/ Name/ Nom: _____ Mobile telephone/ Mobiltelefonnummer/ Numéro mobile: _____
E-mail: _____

Please complete page 2/ Bitte vervollständigen Sie Seite 2/Sup remplir page 2

We encourage...



- Local WC organizers to inform the race doctor(s) about the FIS ISS
- Race doctors to assist the TDs in filling out the injury form



We encourage...



- Team medical personnel to inform the TDs if an injury happens to one of their athletes (so the TDs can fill out the injury form)
- Athletes and coaches to remind team medical personnel to report to the TDs
- Reminder at team captains meeting





Injury report / Verletzungsmeldung / Rapport de blessure

All injuries that occur during official training or competition and require attention by medical personnel should be reported/ Alle Verletzungen, die während des offiziellen Trainings oder des Wettkampfes auftreten und Betreuung durch medizinisches Personal erfordern, sollten gemeldet werden/Toutes les blessures qui se produisent pendant l'entraînement officiel ou la compétition et qui nécessitent l'attention du personnel médical doivent être rapportées

Event information/

Informationen zum Bewerb/Information sur l'évènement

Discipline/ Disziplin/Discipline:

Site/ Ort/Lieu: Country/ Land/Pays:

Category/ Kategorie/Catégorie: Codex:

Date (DD.MM.YYYY)/ Datum/Date:

Athlete information/

Informationen zum Athleten/Données sur l'athlète

Name/ Name/Nom:

FIS Code:

Country/ Land/Pays: Gender/ Geschlecht/ Sexe: Male/ Mann/Homme Female/ Frau/Femme

Birth date (DD.MM.YYYY)/ Geburtsdatum/ Date de naissance:

Injury information/

Information zur Verletzung/Information sur la blessure

To be completed in collaboration with event or team medical staff (if possible)/ Bitte in Zusammenarbeit mit dem medizinisch Verantwortlichen der Veranstaltung oder des Teams ausfüllen (wenn möglich)/Svp remplir en collaboration avec le personnel médical de l'évènement ou de l'équipe (si possible)

Body part injured/ Verletzter Körperteil/Partie du corps blessée:

- Head-face/ Kopf-Gesicht/Tête-Face
- Neck-cervical spine/ Nacken-Halswirbel/Nuque-Vertèbre cervicale
- Shoulder-clavicular/ Schulter-Schlüsselselbein/Epaule-Clavicule
- Upper arm/ Oberarm/Bras
- Elbow/ Ellbogen/Coudes
- Forearm/ Unterarm/Avant-bras
- Wrist/ Handgelenk/Poignet
- Hand-finger-thumb/ Hand-Finger-Daumen/Main-Doigt-Pouce
- Chest (sternum-ribs-upper back)/ Brustkasten (Brustbein-Rippen-Brustwirbelsäule)/Thorax (Sternum-Côtes-Haut du dos)
- Abdomen/ Bauch/Abdomen
- Lower back-pelvis-sacrum/ Lendenwirbelsäule-Becken-Kreuzbein/Bas du dos-Pelvis-Sacrum
- Hip-groin/ Hüfte-Leiste/Hanche-Aîne
- Thigh/ Oberschenkel/Cuisse
- Knee/ Knie/Genoux
- Lower leg-Achilles tendon/ Unterschenkel-Achillessehne/Jambe-Tendon d'Achille
- Ankle/ Fussgelenk/Cheville
- Foot-heel-toe/ Fuss-Ferse-Zehen/Fied-Talon-Orteils

Information not available/ Information nicht verfügbar/Information non disponible

Right/ Rechts/Droite Left/ Links/Gauche Not applicable/ Nicht anwendbar/Non applicable

Specific diagnosis (if available)/ Genaue Diagnose (wenn verfügbar)/Diagnostic spécifique (si disponible):

Note: If there are multiple injuries resulting from the same accident, please describe the most serious injury above and the less serious injuries here/ Anmerkung: Wenn aus dem gleichen Unfall mehrere Verletzungen resultieren, bitte beschreiben sie die schwereren Verletzungen oben und die leichteren Verletzungen hier/Note: S'il y a des blessures multiples résultant du même accident, veuillez décrire les blessures les plus sérieuses ci-dessus et les blessures moins sérieuses ci-dessous:

Contact information to obtain further medical information/ Kontakt für weitere medizinische Informationen/Contact pour obtenir des informations médicales supplémentaires:

Name/ Name/Nom: Mobile telephone/ Mobiltelefonnummer/ Numéro mobile:

E-mail:

Note: Injuries occurring during warm-up, free skiing/snowboarding or between runs need NOT be recorded/ Anmerkung: Verletzungen die während des Aufwärmens, bei freien Skifahren/Snowboarden oder zwischen zwei Läufen passieren müssen NICHT gemeldet werden/Note: Des blessures se produisant pendant l'échauffement, le ski/snowboarding libre ou entre les manche/runs n'ont pas besoin d'être enregistrés

Injury type/ Art der Verletzung/Genre de la blessure:

- Fractures and bone stress/ Frakturen und Ermüdungsbrüche/Fracture et fracture de fatigue
- Joint (non-bone) and ligament/ Gelenke (nicht Knochen) und Bänder/Joint (articulation) et ligament
- Muscle and tendon/ Muskel und Sehnen/Muscle et tendon
- Contusions/ Quetschungen/Contusions
- Laceration and skin lesion/ Fleischwunden und Hautverletzung/Plaie et lésion de la peau
- Nervous system including concussion/ Nervensystem inkl. Gehirnerschütterung/Système nerveux y compris commotion cérébrale
- Other/ Andere/Autres
- Information not available/ Information nicht verfügbar/Information non disponible

Expected absence from training and competition/ Voraussichtliche Abwesenheit von Training und Wettkämpfen/Prévision d'absence à l'entraînement et en compétitions:

- No absence/ Keine Absenz/Pas d'absence
- 1 to 3 days/ 1 bis 3 Tage/1 à 3 jours
- 4 to 7 days/ 4 bis 7 Tage/4 à 7 jours
- 8 to 28 days/ 8 bis 28 Tage/8 à 28 jours
- >28 days/ >28 Tage/>28 jours
- Information not available/ Information nicht verfügbar/Information non disponible

Injury circumstances/

Umstände der Verletzung/Circonstances de la blessure:

- Competition/ Wettkampf/Compétition
- Official training/ Offizielles Training/Entraînement officiel

Type of snow/ Schneeart/Genre du neige:

- Natural snow/ Naturschnee/Neige naturelle
- Artificial snow/ Kunstschnee/Neige artificiel
- Plastic/ Plastik/Plastique

Course conditions (multiple choices possible)/ Streckenzustand (mehrere Antworten möglich)/Condition de la piste (choix multiples possibles):

- Ice/ Eis/Glace
- Soft/ Weich/Doux
- Compact/ Kompakt/Compact
- Injected snow/ Wasserbehandelter Schnee/Neige traitée par l'eau
- Chemicals used (salt, snow solidifier, others)/ Gebrauchte Chemikalien (Salz, Schneeverfestiger, andere)/Produit chimique utilisé (sel, solidification de neige, autres)

Weather conditions (multiple choices possible)/ Wetterbedingen (mehrere Antworten möglich)/Conditions météorologiques (choix multiples possibles):

- Sunny-clear/ Sonnig-klar/Beau temps-clair
- Cloudy/ Bewölkt/Couvert
- Raining/ Regnerisch/Pluvieux
- Snowing/ Schneefall/Chute de neige
- Foggy/ Nebel/Brouillard
- Flat light/ Diffuses Licht/Mauvaise visibilité
- Artificial light/ Künstliche Beleuchtung/Illumination artificielle

Wind conditions/ Windkonditionen/Condition de vent:

- No wind/ Kein Wind/Pas de vent
- Some wind/ Etwas Wind/Peu de vent
- High wind/ Starker Wind/Vent fort

Video/ Video/Vidéo:

Video available from accident (multiple choices possible)/ Video vom Unfall verfügbar (mehrere Antworten möglich)/Vidéo de l'accident disponible (choix multiples possibles):

- No/ Keines/No
- TV broadcast/ Fernsehansicht/Chaines TV
- Other video/ Anderes Video/Autres vidéos:

Explain/ Erklärung/Expliquez:

Contact information to obtain copy of video/ Kontakt um das Video zu erhalten/Contact pour obtenir une copie de la vidéo:

Name/ Name/Nom:

E-mail:

Mobile telephone/ Mobiltelefonnummer/ Numéro mobile:

Other comments/

Weitere Bemerkungen/Autres commentaires:

Please send this injury report as soon as possible to/
Bitte schicken Sie diese Verletzungsmeldung so rasch als möglich an/
Veuillez envoyer ce rapport de blessure le plus vite possible à la:

FIS, Blochstrasse 2, CH-3653 Oberhofen, SU1

Fax: +41 33 244 61 71

E-mail: Alpine: luessy@fisski.ch Freestyle/Snowboard: hostettler@fisski.ch
Cross Country: richter@fisski.ch Ski Jumping/Nordic Combined: friedrich@fisski.ch



Injury information

Injury information/

Information zur Verletzung/Information sur la blessure

To be completed in collaboration with event or team medical staff (if possible)/ Bitte in Zusammenarbeit mit den medizinisch Verantwortlichen der Veranstaltung oder des Teams ausfüllen (wenn möglich)/Svp remplir en collaboration avec le personnel médical de l'événement ou de l'équipe (si possible)

Note: Injuries occurring during warm-up, free skiing/snowboarding or between runs need NOT be recorded/ Anmerkung: Verletzungen die während des Aufwärmens, bei freien Skifahren/Snowboarden oder zwischen zwei Läufen passieren müssen NICHT gemeldet werden/Note: Des blessures se produisant pendant l'échauffement, le ski/snowboarding libre ou entre les manche/runs n'ont pas besoin d'être enregistrés

Body part injured/ Verletzter Körperteil/Partie du corps blessée:

- Head-face/ Kopf-Gesicht/Tête-Face
- Neck-cervical spine/ Nacken-Halswirbel/Nuque-Vertèbre cervicale
- Shoulder-clavicula/ Schulter-Schlüsselbein/Epaule-Clavicule
- Upper arm/ Oberarm/Bras
- Elbow/ Ellenbogen
- Forearm/ Unterarm
- Wrist/ Handgelenk
- Hand-finger/ Hand-Finger
- Chest/ Brust/Thorax (Stemum-Côtes-Haut du dos) - Rippen-Brustwirbelsäule
- Abdomen/ Bauch/Abdomen
- Lower back-pelvis-sacrum/ Lendenwirbelsäule-Becken-Kreuzbein/Bas du dos-Pelvis-Sacrum
- Hip-groin/ Hüfte-Leiste/Hanche-Aine
- Thigh/ Oberschenkel/Cuisse
- Knee/ Knie/Genoux
- Lower leg-Achilles tendon/ Unterschenkel-Achillessehne/Jambe-Tendon d'Achille
- Ankle/ Fussgelenk/Cheville
- Foot-heel-toe/ Fuss-Ferse-Zehen/Pied-Talon-Orteils
- Information not available/ Information nicht verfügbar/Information non disponible

Body part

Side/ Seite/Part.

- Right/ Rechts
- Left/ Links
- Not applicable/ Nicht anwendbar

Side

Specific diagnosis (if available)/ Genaue Diagnose (falls vorhanden):

Diagnosis

Injury type/ Art der Verletzung/Genre de la blessure:

- Fractures and bone stress/ Frakturen und Ermüdungsbrüche/Fracture et fracture de fatigue
- Joint (non-bone) and ligament/ Gelenke (nicht Knochen) und Bänder/Joint (articulation) et ligament
- Muscle a
- Contusion
- Laceration/ Hautverletzung
- Nervous system including concussion/ Nervensystem inkl. Gehirnerschütterung/Système nerveux y compris commotion cérébrale
- Other/ Andere/Autres
- Information not available/ Information nicht verfügbar/Information non disponible

Injury type

Expected absence from training and competition/

Voraussichtliche Abwesenheit von Training und Wettkämpfen/Prévision d'absence à l'entraînement et en compétitions:

- No absence/ Keine Absenz/Pas d'absence
- 1 to 3 days
- 4 to 7 days
- 8 to 28 days
- >28 days
- Information not available/ Information nicht verfügbar/Information non disponible

Absence

We are working on:

- Making the injury form easy to find on the FIS website
- Reminder e-mails to local WC organisers and teams to emphasize the importance of injury reporting to the TDs

Take home message



- TD reports are our only record of injuries during WC and other FIS events!



DJO is generously supporting the International Ski Federation Injury Surveillance System



Oslo Sports Trauma
RESEARCH CENTER



Walter Hofer, Race Director Ski Jumping

29 September 2008

Regarding injuries to ski jumpers

We have understood that you have a very tight schedule during the FIS autumn meetings in Zürich and that there will be no time for an update of the FIS Injury Surveillance System. We therefore just want to inform you regarding a concern the coordinator for the Ladies Ski Jumping Circuit, Edgar Ganster, wanted us to look into, namely a concern regarding knee injuries to the women ski jumpers.

The women's COC level in ski jumping was therefore included in the registration at the same level as World Cup. In addition to the registration by the TD's throughout the season, we also performed interviews with the active male ski jumpers at the World Cup level and female ski jumpers at the Continental Cup level at the season-ending events of the 2007-08 winter season in Lillehammer (Norway) and Schönwald (Germany) regarding serious knee injuries during the previous 4 seasons. A serious knee injury was defined as one leading to an absence from training and competition for >28 days. Coaches and/or physical therapists/physicians were interviewed regarding athletes on the team roster, but not available for interview during the events in question.

A total of 76 male and 70 female ski jumpers were interviewed. Of the 70 female ski jumpers, 11 (16%) reported to have had a serious knee injury. There were 9 cruciate ligament injuries (all anterior cruciate ligaments, ACL) and 2 meniscus injuries. All of the knee injuries had occurred during ski jumping, competition or training. Among the 76 male ski jumpers 6 (8%) reported a serious knee injury, 5 cruciate ligament injuries (2 were ACL injuries) and 1 patella tendon rupture. One of the cruciate ligament injuries and the patella tendon rupture did not occur during ski jumping, but in other training activities.

From this we can say that serious knee injuries represent a problem in ski jumping, especially among female athletes, with an injury risk at least as high as that reported from other high-risk sports such as female handball and football. Furthermore, it is likely that the present numbers underestimate the true incidence of serious knee injuries, since only active athletes were interviewed.

With this knowledge we therefore would recommend that female ski jumpers routinely use preventive training programs similar to those used by handball and football in order to try to reduce the numbers of serious knee injuries.

Best regards

Tonje Wåle Flørenes (s)
MD
Oslo Sports Trauma Research Center

Roald Bahr
Professor
Oslo Sports Trauma Research Center

Tel: (+47) 23262372
Mob: (+47) 93894353
Fax: (+47) 23262307
E-mail: tonje.wale.florenes@nih.no