



20th Congress of the
International Society
for Skiing Safety
In association
with SITEMSH

4th to 10th August 2013

BARILOCHE - ARGENTINA

SITEMSH WORKSHOP 2: MANAGEMENT OF HEAD INJURIES

Epidemiological aspects of head injuries in a ski resort

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ANDORRA www.cmpas.com info@cmpas.com



Andorra

**It is a mountainous country, with
70000 inhabitants living in 462
square km
with more than 10 peaks ranged
between 2900mt and 3000mt high**



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Andorra

**2 of the 3 biggest ski areas in the
Pyrenees, Vallnord and GrandValira
with 1,800,000 skier-days/season**

SNOW SPORTS INJURIES IN ANDORRA

**we have old registers beginning
in the seventies by their are not
standardized, in paper forms,
with no control groups**

SNOW SPORTS INJURIES IN ANDORRA

**efforts have been made to improve the data
collection**

**for the last 10 seasons theres is a unique
database resulting from the work of the ski
patrols, the resorts medical centers and the
hospital**

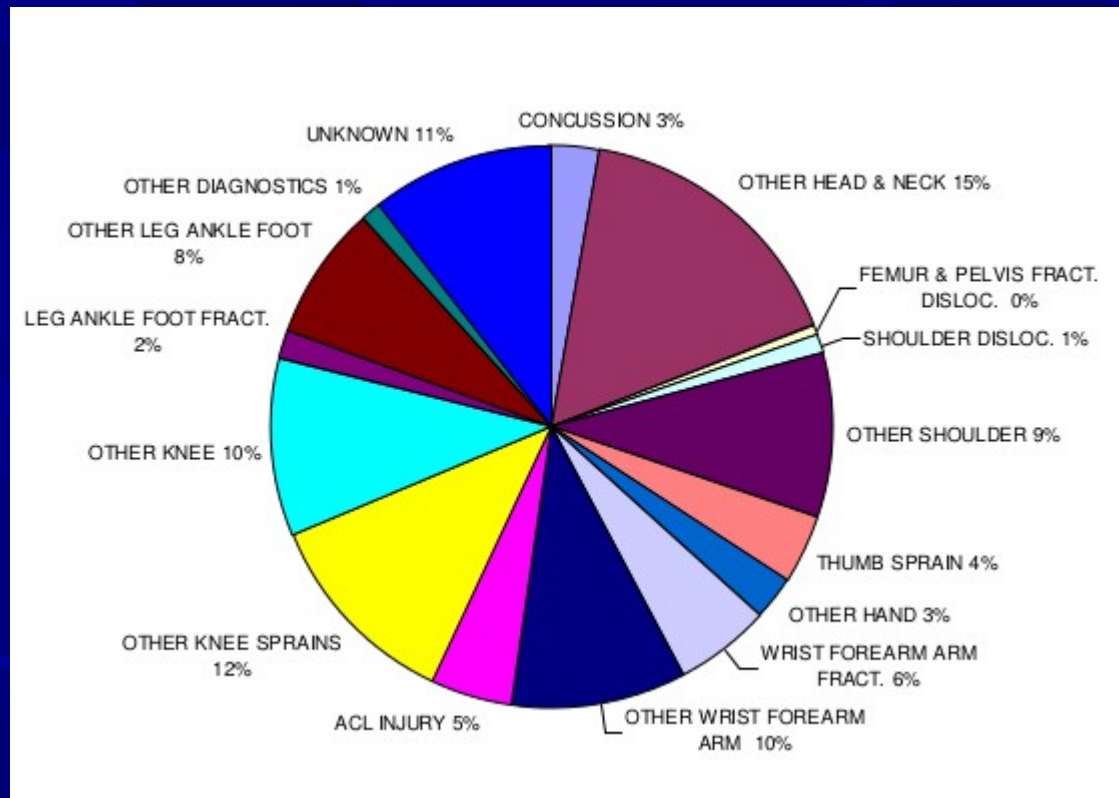
**ALL THE DATA ON SNOW SPORT INJURIES
ARE COLLECTED IN A UNIQUE DATABASE
with 140,000 recorded inj.**

SNOW SPORTS INJURIES IN ANDORRA

This data base gives us good general information, completed by control groups (unfortunately not for all the seasons), but when studying precise issues it has some limits

Head injuries in snowsports

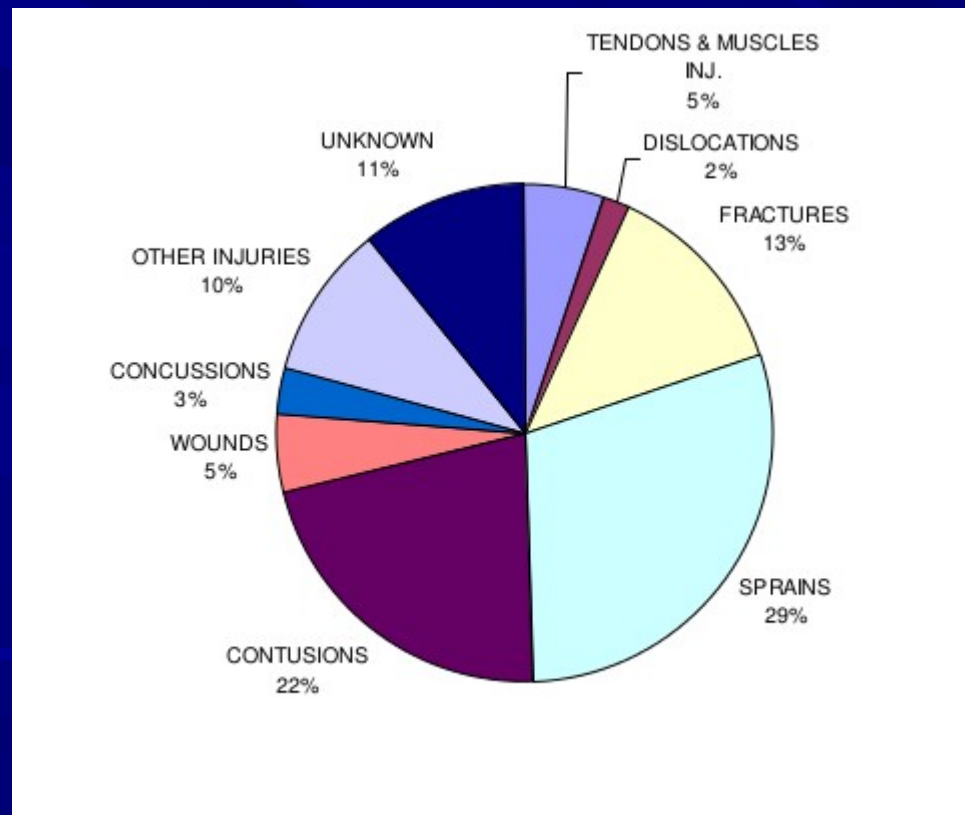
Injured region



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Head injuries in snowsports

Type of injury

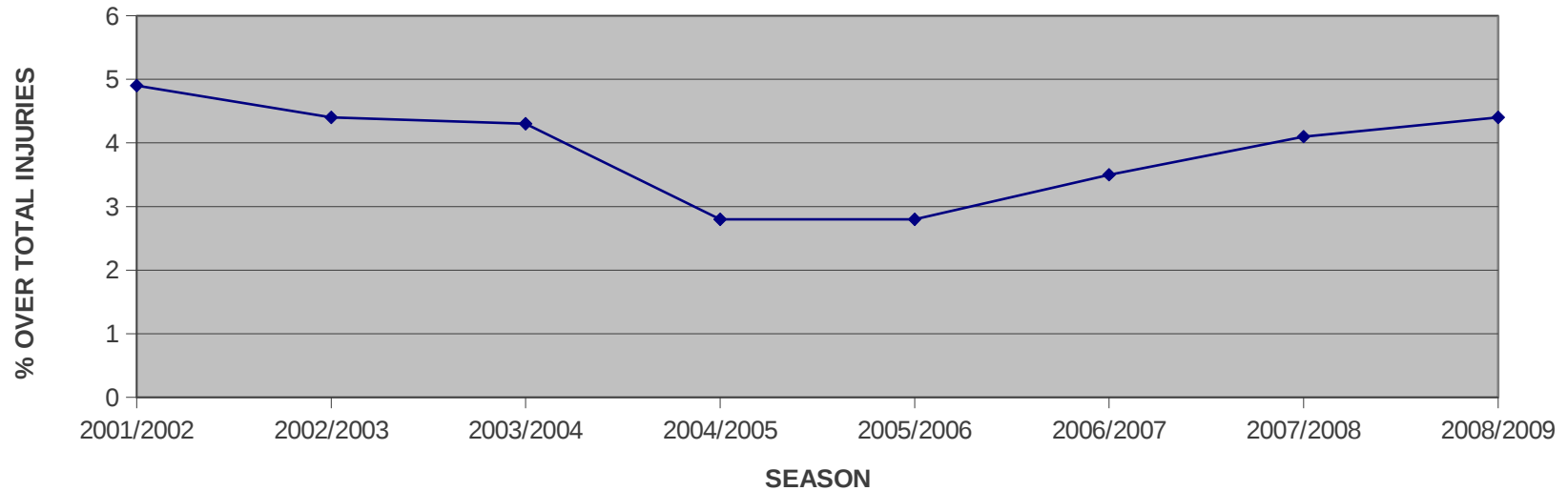


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head injuries evolution

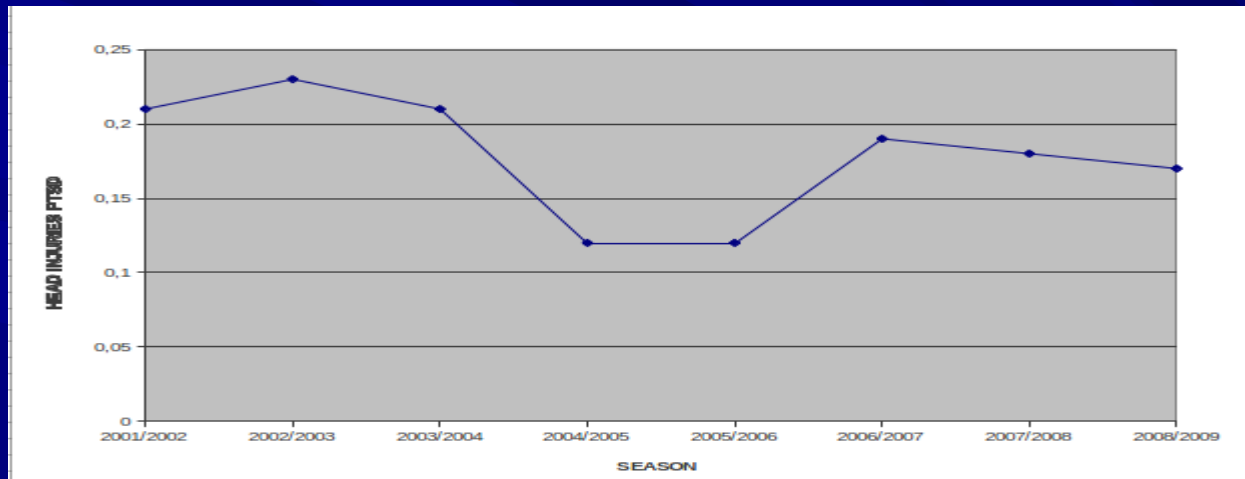
% of overall injuries

HEAD INJURIES



head injuries evolution

Injuries /1000 skier days



SNOW SPORTS INJURIES IN ANDORRA

**Concerned about this particular issue
we began in our center
to enrich data collection in head
injuries from 2010-2011
but no on-deep analysis has been
made yet**

Head injuries in snowsports

The enriched data collection about head injuries began in season 2010-2011
and no on-deep analysis has been made yet

Head injuries in snowsports

TCE		
Nº ID:		
-Nom		
-Data		
-Edat	-Sexe: H / D	-Casc: SI / NO
-Disparfecte: SI / NO		
MECANISME		
-COL·LISió NO / SI		
-CAIGUDA: propia altura / altres altures.....		
-DIVERGIA TRAUMÀTICA: ALTA / BAXA		
-DE CARA / D'ESQUENA		
INTERROGATORIS		
-PERDUA DE CONCIENCIA NO / SI / DUBTOS		
-CONVULSIONS NO / SI		
-RELAXACIO ESFINCTERS NO / SI		
-AMNESA NO / SI (delis feb. ant. post..)		
-VOMITS NO / SI		
-BASQUES NO / SI		
-MARBG NO / SI		
-VERTIGEN NO / SI		
-CEFALEA NO / SI (localització)		
EXPLORACIÓ:		
-GLASGOW:		
-Ocular		
-Verbal		
-Motric		
-SOMNOLÈNCIA NO / SI		
-DISCURS REPETITIU NO / SI		
-ORIENTACIÓ TEMPORAL-ESPACIAL NO / SI		
-PUPILES		

-INSTAGMUS NO / SI	
-VISIó (BORROSA)	
-ORL (HEMORRÀGIA/ LCR):	
-Orelles	
-Nas	
-ROTS	
-BABINSKY (RCPF) NO / SI	
-ROMBERG NEGATIU / POSITIU	
-SIGNES DE MENINGISME NO / SI	
-ALTRES:	
COMENTARIS:	
Hora:	
* TA	
* FC	
* SPO ₂	
* GLUCÈMIA	
* OMBUR	
Hora:	
* TA	
* FC	
* SPO ₂	
DESTI ALTA:	
-Domis II	
-Derivat a HNSM (ambulància convencional / SJM / helicòpter)	

Head injuries in snowsports

2/3 were transferred to the local hospital

the other were given an advice form and told to consult again if worsening

Head injuries in snowsports

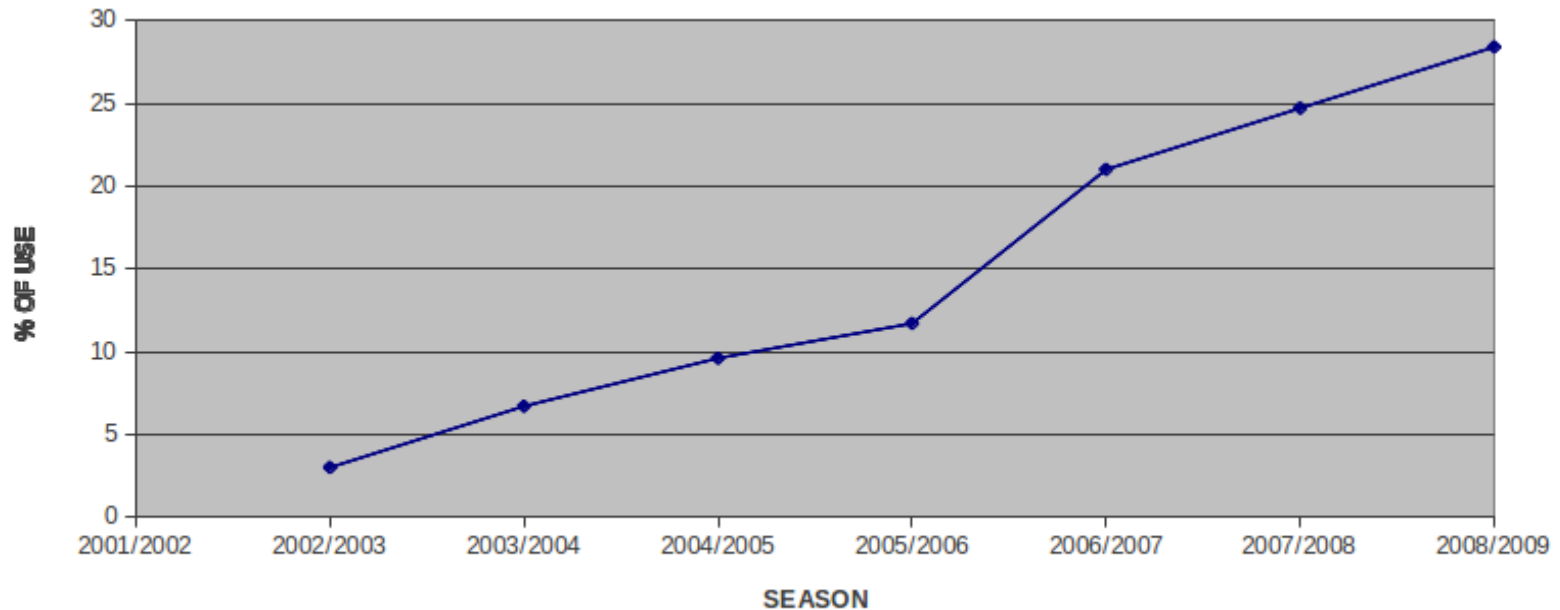
In patients sent to hospital

40% had a CT Scan

90% staid less than 24h in the hospital

6 % were transfered from the local hospital to level 3 hospital (Barcelona or Toulouse)

Evolution of helmet use % of injured wearing helmet



Evolution of helmet use

Among children helmet use is largely majoritary:

- Children coming with their schools, ski clubs, and other organized structures (either from Andorra or other countries), have as mandatory the use of safety helmet, so 100 % are normally wearing helmet
- For those who come individually with their parents lower ski pass prices are applied when wearing helmets
- Helmets are easily found in rental shops

UNHELMETED CHILD ARE EXTREMELY UNCOMON

Child and head injuries

Children are more exposed to head injuries than older skier /snowboarders, we have no precise data on this age group.

More studies are needed to confirm the massive use of helmets and its benefits

Considerations on helmets

In a previous study

We did not find decrease in the % of patients needing hospitalary treatment, while helmet use is expanding

The most dangerous injuries usually associate several localizations, are usually caused by high speed collisions, and there is no evidence that they could be prevented by helmet use.

Considerations on helmets

Making helmet use mandatory in children seems reasonable; helmet use in adults should result of good information including talking about risk taking behaviors.

Considerations on helmets

Previous studies from other authors show that helmet use reduces severity and incidence of head injuries.

Extremely severe head injuries, resulting from high speed collisions, cannot be prevented by helmet use.

CONCLUSION

studies are time demanding, but

- they can help doing snowsports safer
- they can help us improving what is done in medical centers

Prospective, multicentre, coordinated studies are necessary in order to improve our understanding of snow sport's injuries and their possible prevention policies

GRACIAS !!!!!

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