



traumatologia i medicina
d'esports d'hivern

Dr. Aleix Vidal i col·laboradors

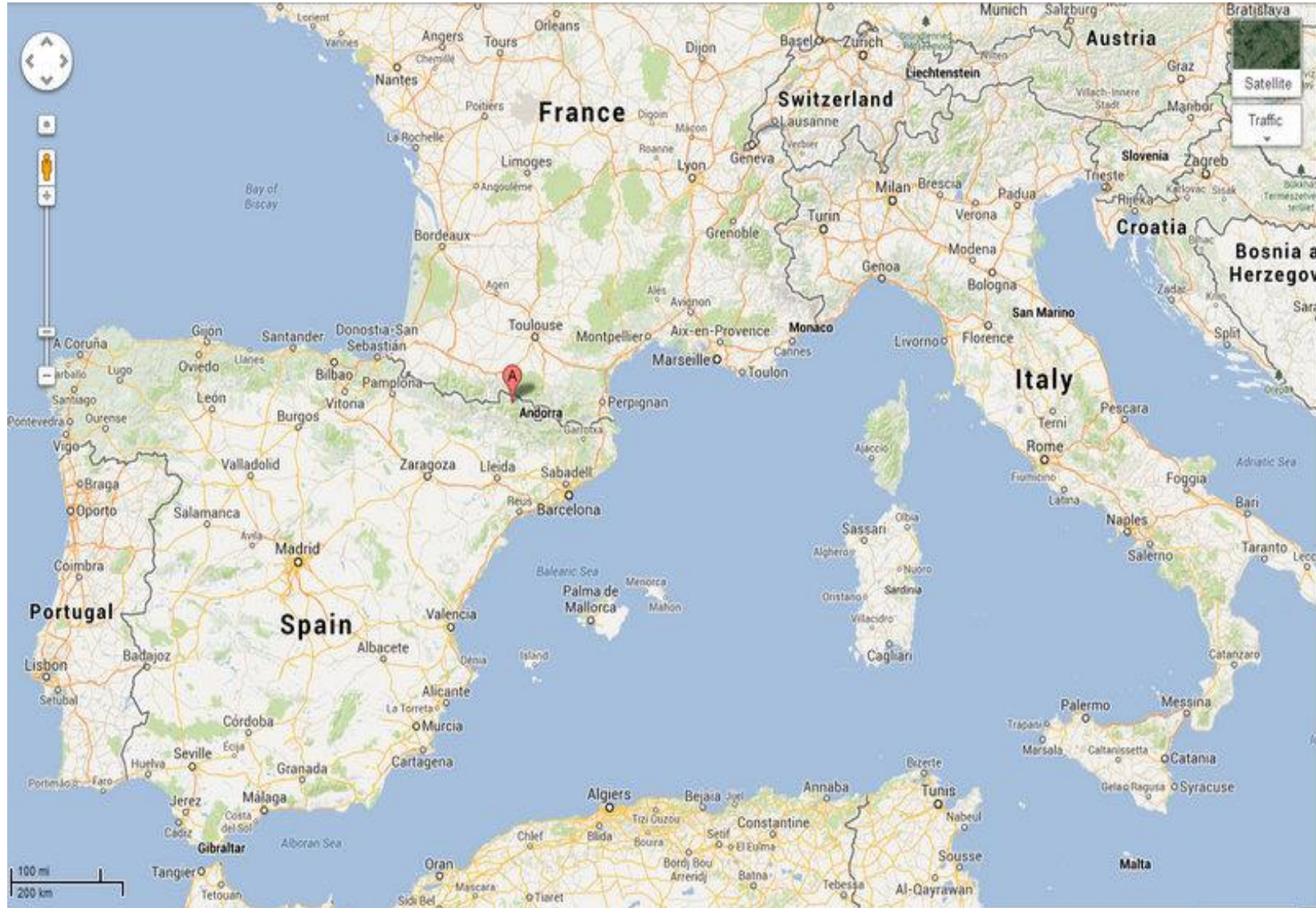
KNEE INJURIES IN SNOW SPORTS

A ten years experience

Dr Aleix Vidal

Baqueira-Beret Medical Center 2005 - 2014

Baqueira-Beret



Baqueira-Beret Ski Resort



Agenda

1. Baqueira Beret – Main data

2. Types of injuries

3. Knee Injuries

4. Conclusions

1992 - 2014

14,218,074 visitors

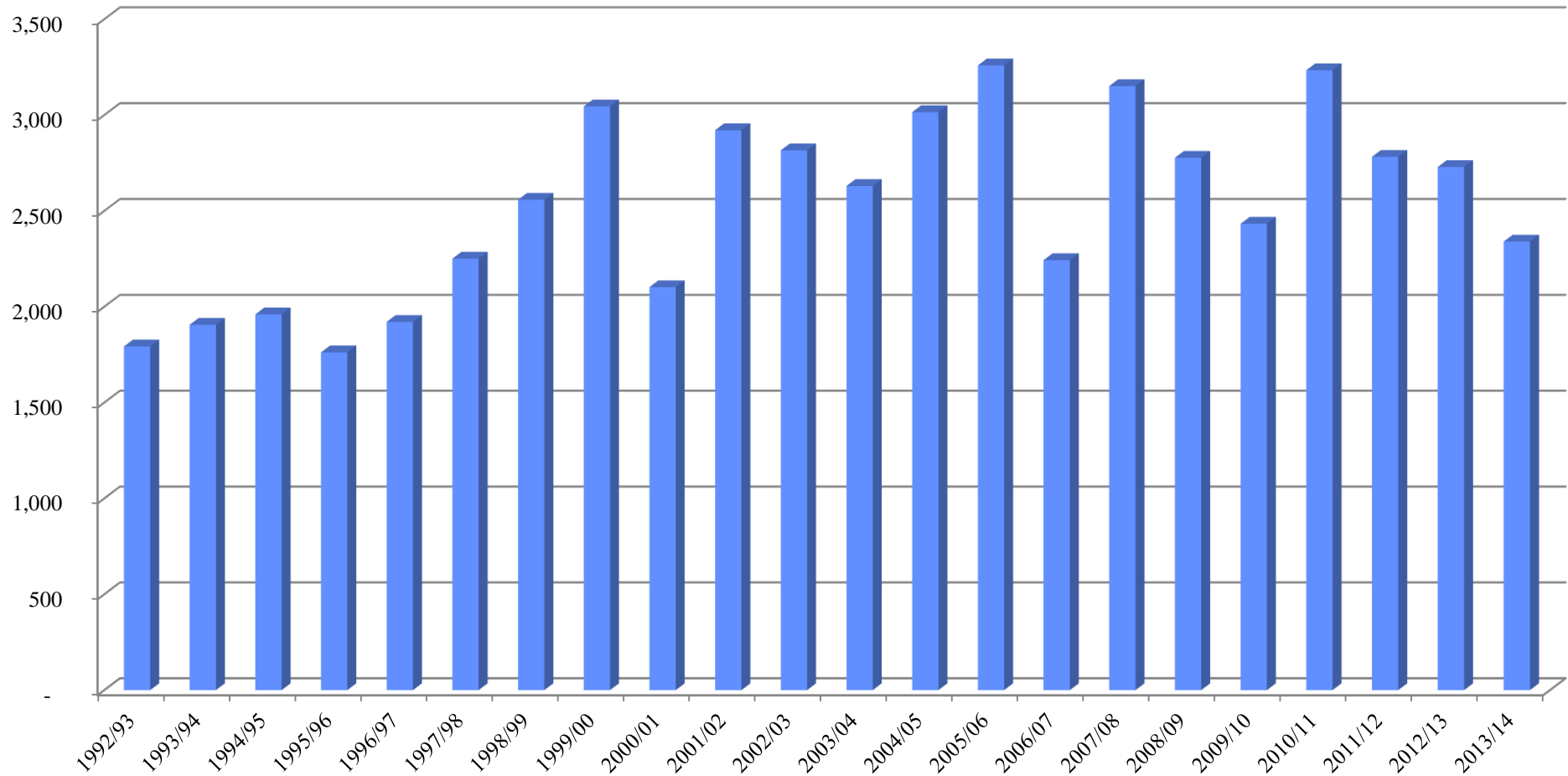
49,362 snow sport
injuries seen in
Baqueira Beret
Medical Centre.



Injuries per season

All Injuries (units)

All Injuries



Injuries per season

All Injuries (visitors and ratio per thousand)

- 92/93 ... 506.000 visitors 3.54 / thousand
- 93/94 ... 551.192 visitors 3.45 / thousand
- 94/95 ... 596.389 visitors 3.18 / thousand
- 95/96 ... 609.271 visitors 2.62 / thousand
- 96/97 ... 508.295 visitors 3.01 / thousand
- 97/98 ... 650.363 visitors 3.49 / thousand
- 98/99 ... 771.287 visitors 3.57 / thousand
- 99/00 ... 864.188 visitors 3.52 / thousand
- 00/01 ... 537.652 visitors 3.92 / thousand
- 01/02 ... 830.927 visitors 3.52 / thousand
- 02/03 ... 788.827 visitors 3.57 / thousand

Injuries per season

All Injuries (visitors and ratio per thousand)

- 03/04 ... 771.770 visitors 3.41 / thousand
- 04/05 ... 907.310 visitors 3.32 / thousand
- 05/06 ... 894.172 visitors 3.64 / thousand
- 06/07 ... 558.180 visitors 4.02 / thousand
- 07/08 ... 750.499 visitors 4.20 / thousand
- 08/09 ... 812.336 visitors 3.42 /thousand
- 09/10 ... 767.951 visitors 3.17 /thousand
- 10/11 ... 776.274 visitors 4.17 /thousand
- 11/12 ... 765.191 visitors 3.64 /thousand
- 12/13 ... 784.339 visitors 3.48 /thousand
- 13/14 ... 772.555 visitors 3.03 /thousand
- 14/15 ... 793.822 visitors 3.17 /thousand

Injuries per season

Statistics



Data

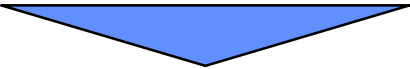
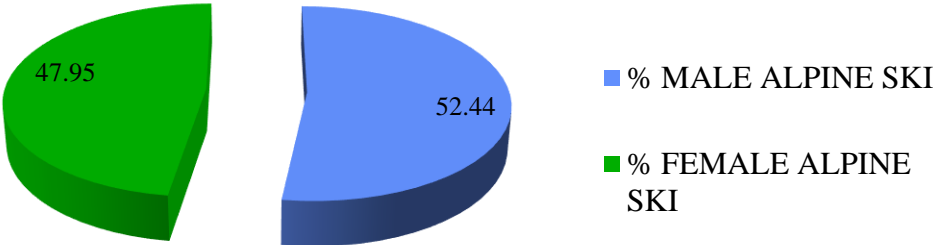
- **Ski: 2,4** per thousand ski days
- **Snowboard: 5,3** per thousand ski days

Probability of injuries

Distribution per gender



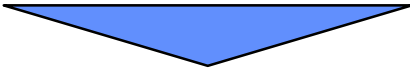
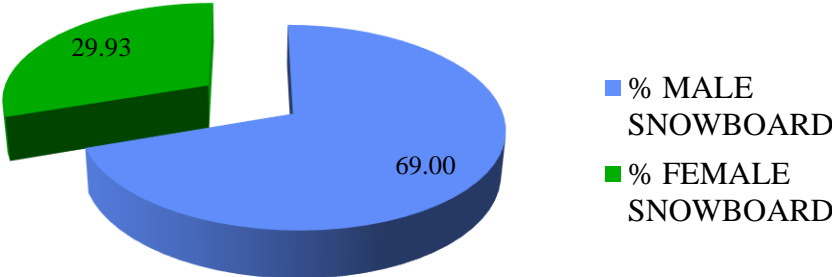
ALPINE SKI INJURIES BY GENDER



Mean Age: 33



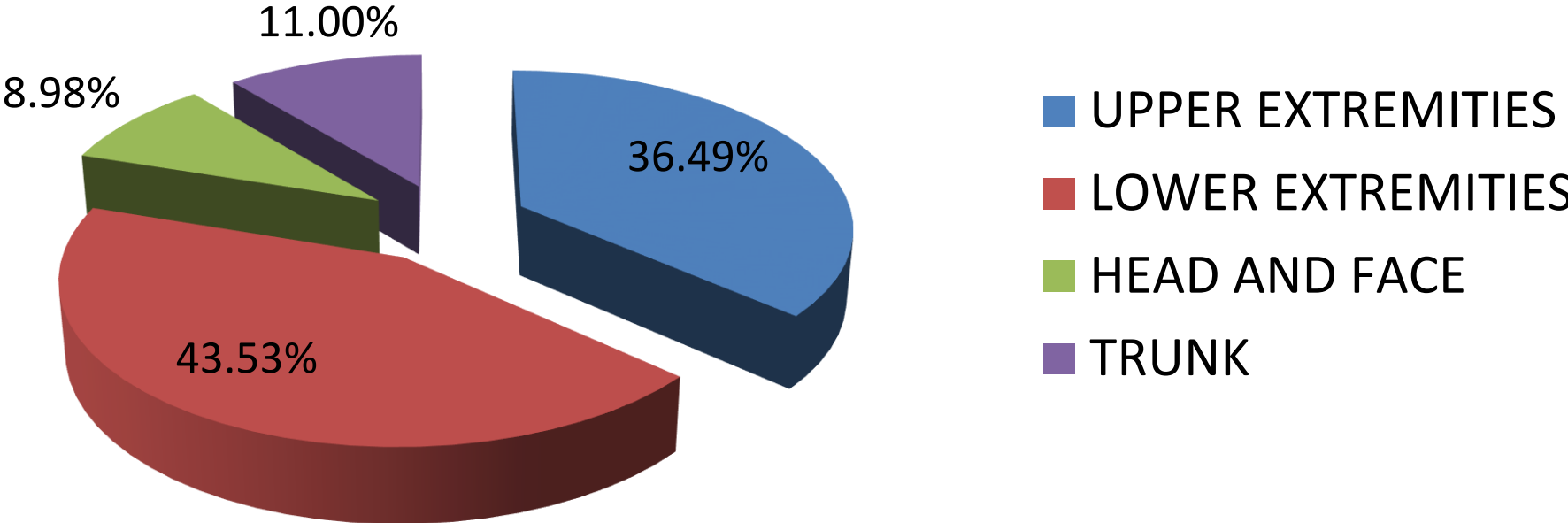
SNOWBOARD INJURIES BY GENDER



Mean Age: 26

Distribution per anatomical region

Injuries per area



Agenda

1. Baqueira Beret – Main data

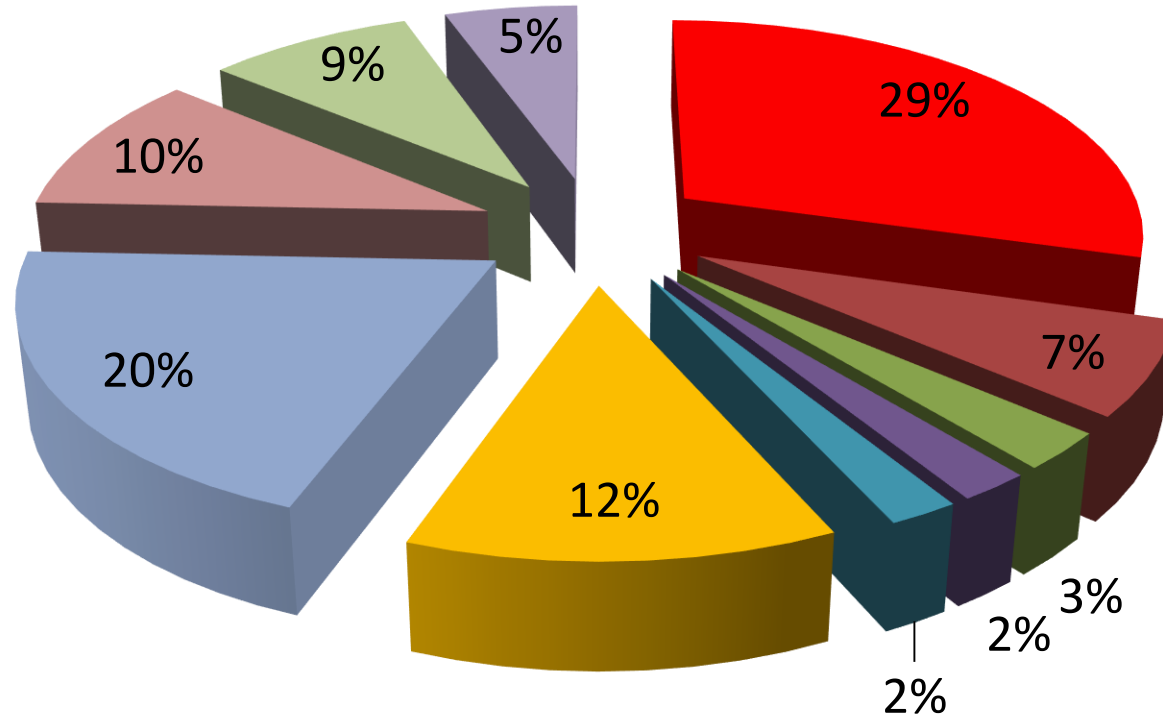
2. Types of injuries

3. Knee Injuries

4. Conclusions

Types of Injuries

Ski – Most common injuries



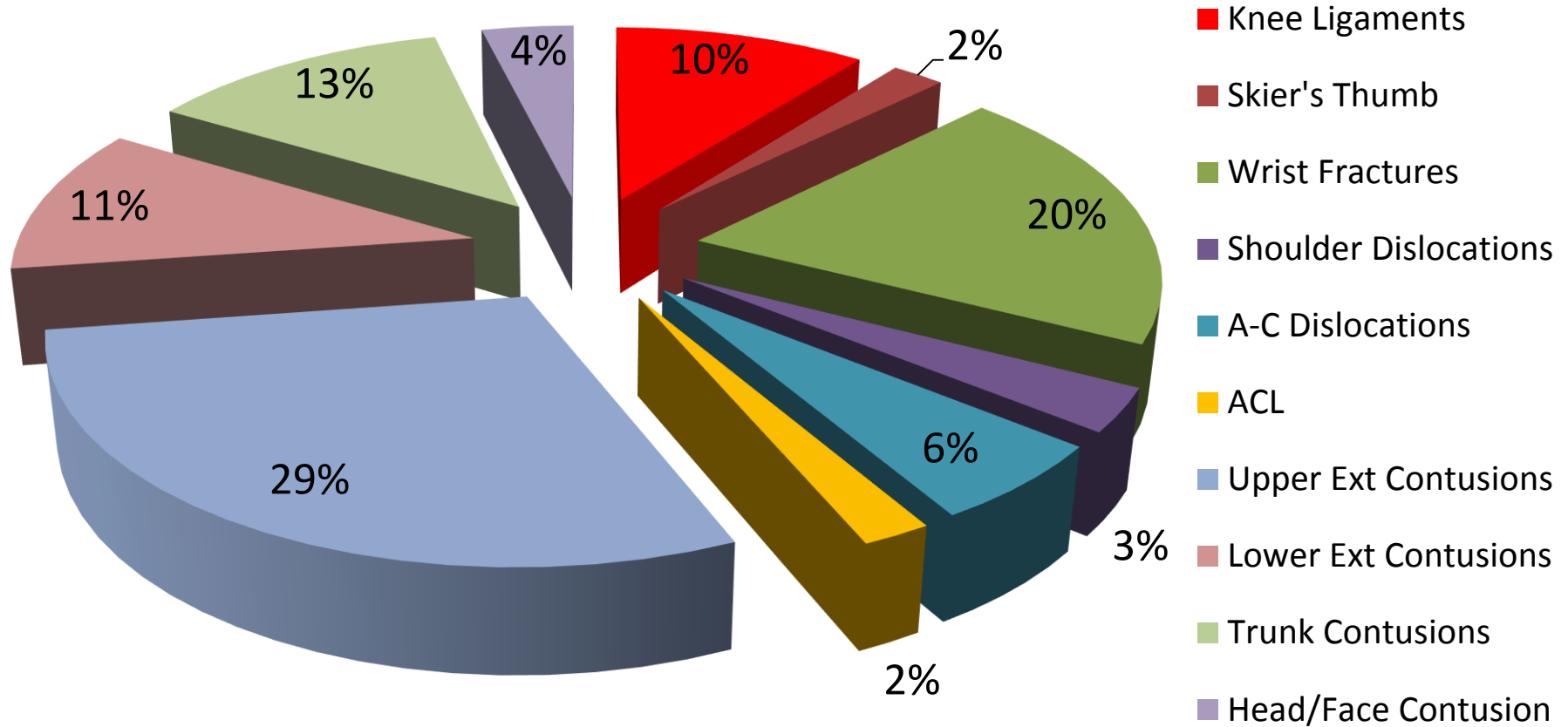
- Knee Ligaments
- Skier's Thumb
- Wrist Fractures
- Shoulder Dislocations
- A-C Dislocations
- ACL
- Upper Ext Contusions
- Lower Ext Contusions
- Trunk Contusions
- Head/Face Contusion

In downhill skiing, 2 pathologies represent 49% of total injuries:

- Knee ligament injuries
- Upper Extremity Contusions

Types of Injuries

Snowboard – Most common injuries



In snowboard, 2 pathologies represent 49% of total injuries:

- Upper Extremity Contusions
- Wrist Fractures

Agenda

1. Baqueira Beret – Main data

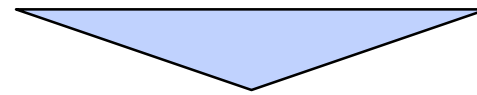
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Knee Injuries

22.894 sports injuries in last 10 seasons
(2005-2014)

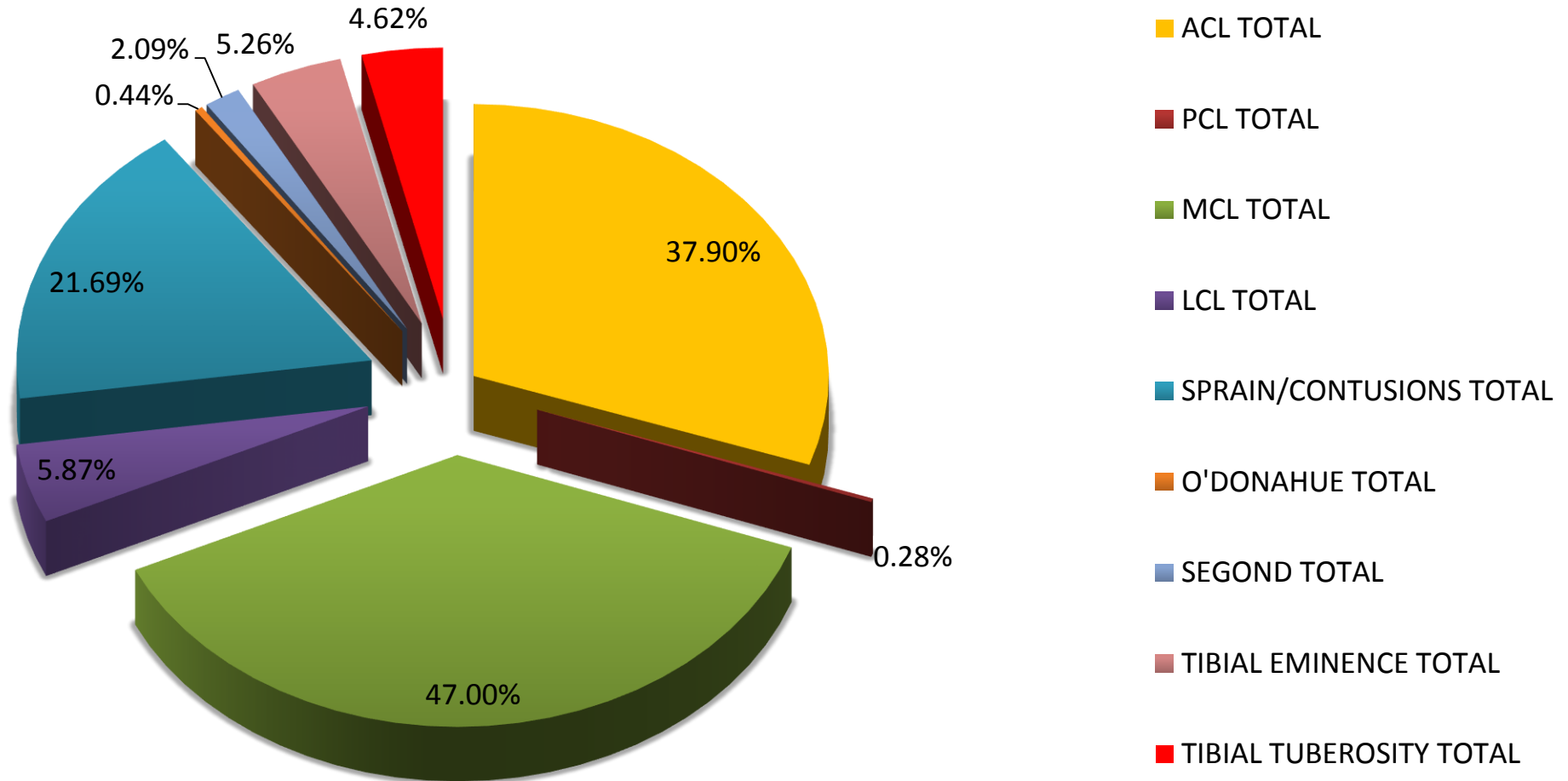


9.195 knee injuries

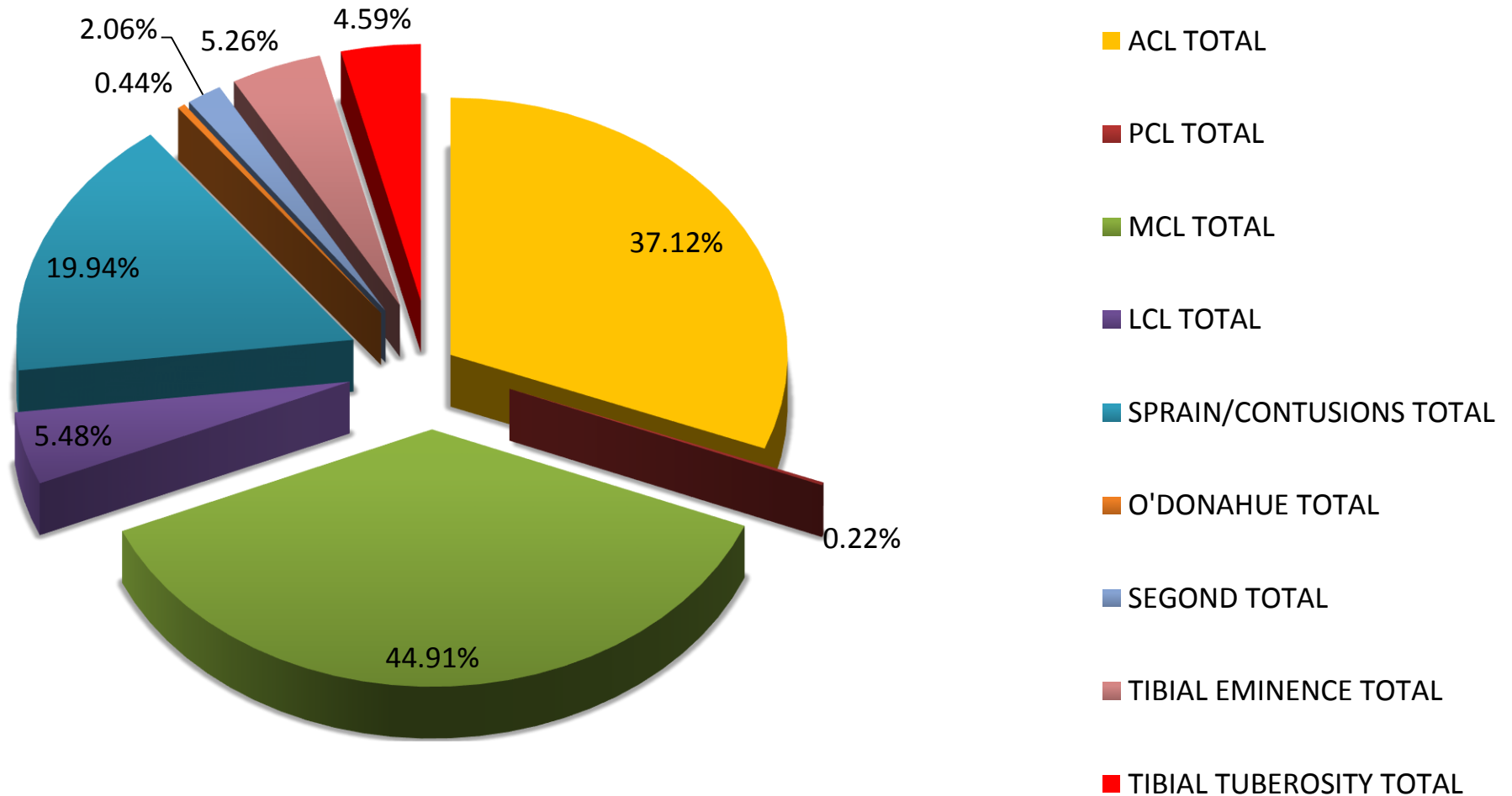


Knee Injuries

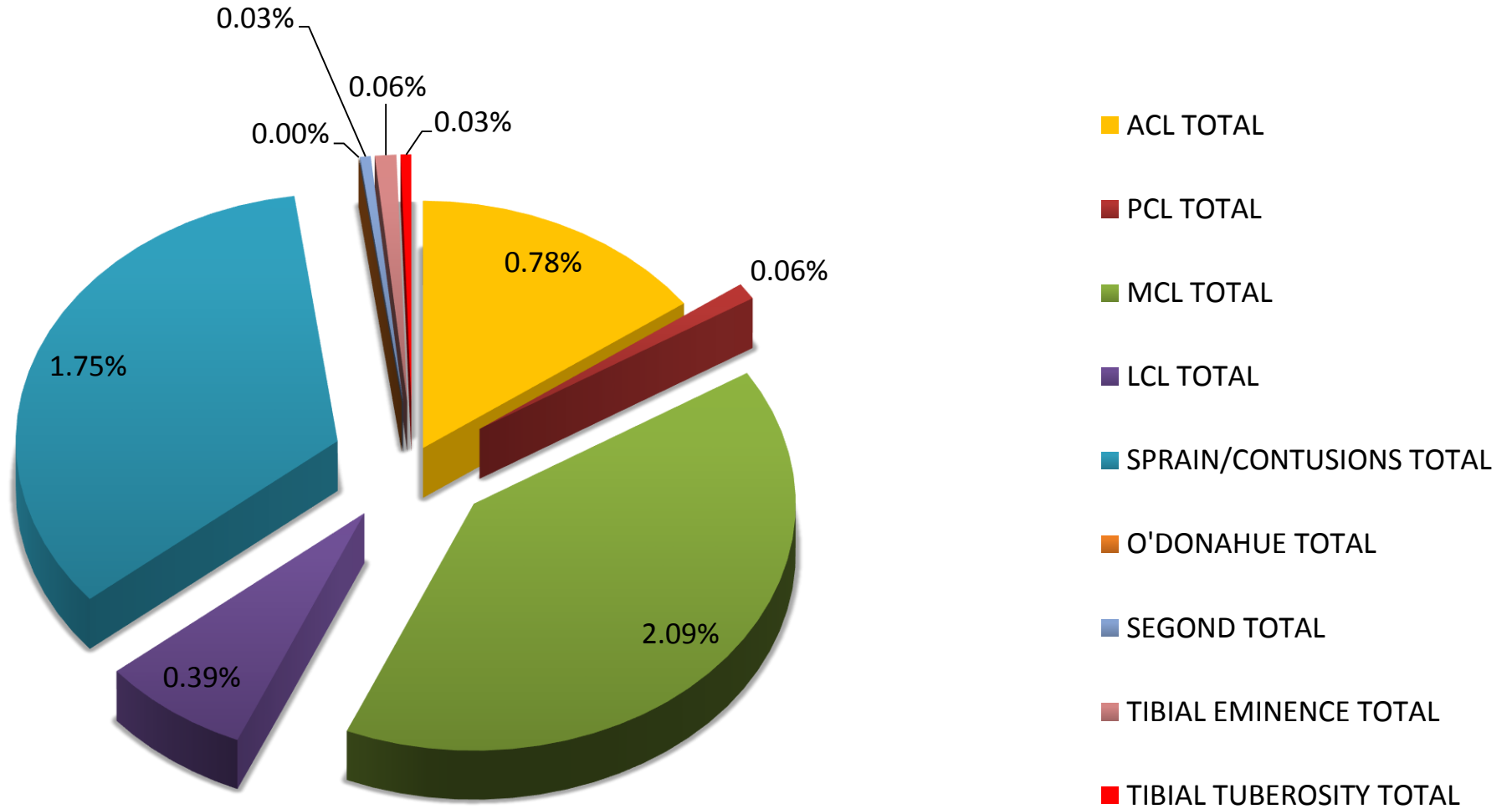
9.195 knee injuries in 10 seasons



Down Hill Ski Knee Injuries

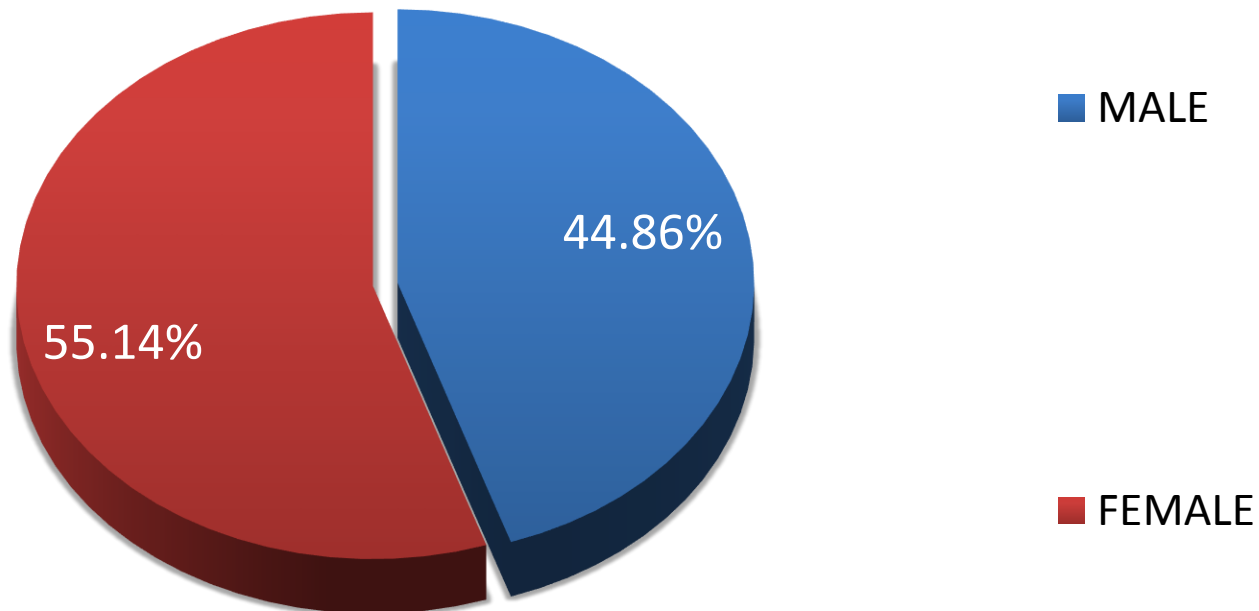


Snowboard Ski Knee Injuries



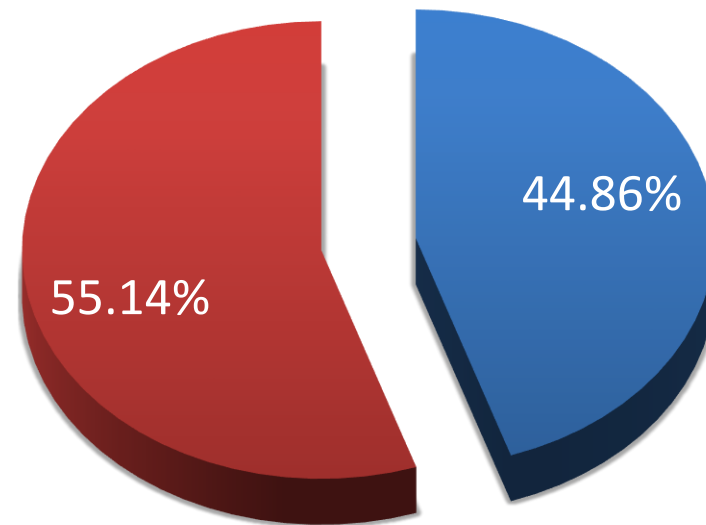
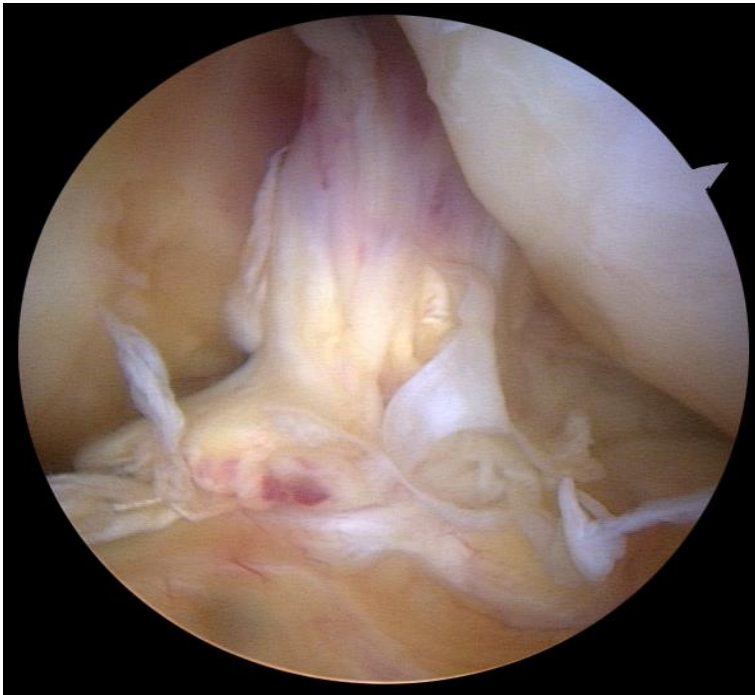
Knee Injuries. 2005-2014

9.195 Cases in 10 seasons
Mean age 34 years old



A. C. L. 2005-2014

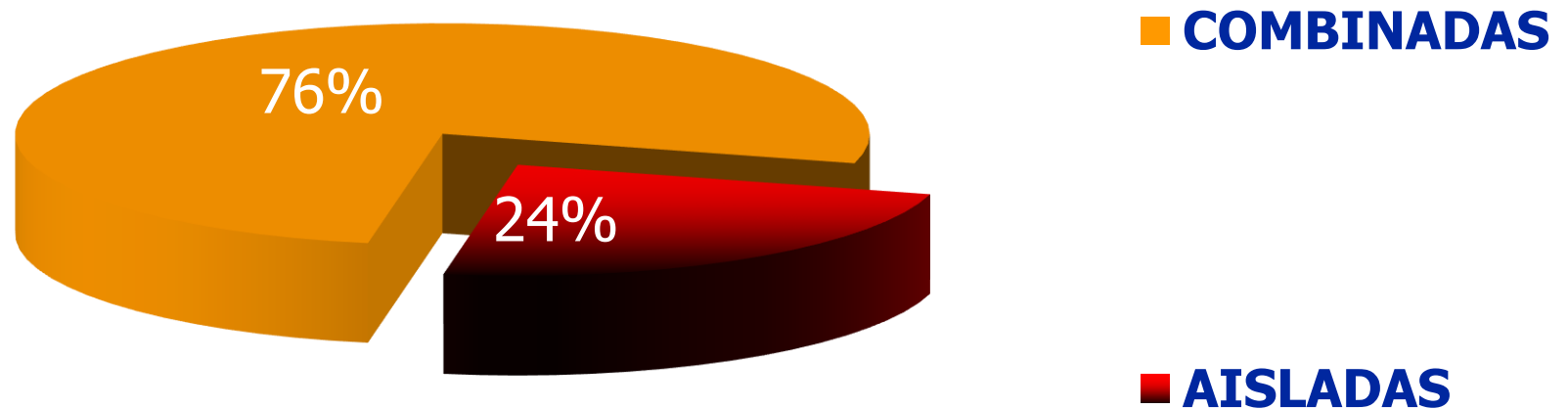
2.816 Cases in 10 seasons
Mean age 39 years old



■ ACL
MALE

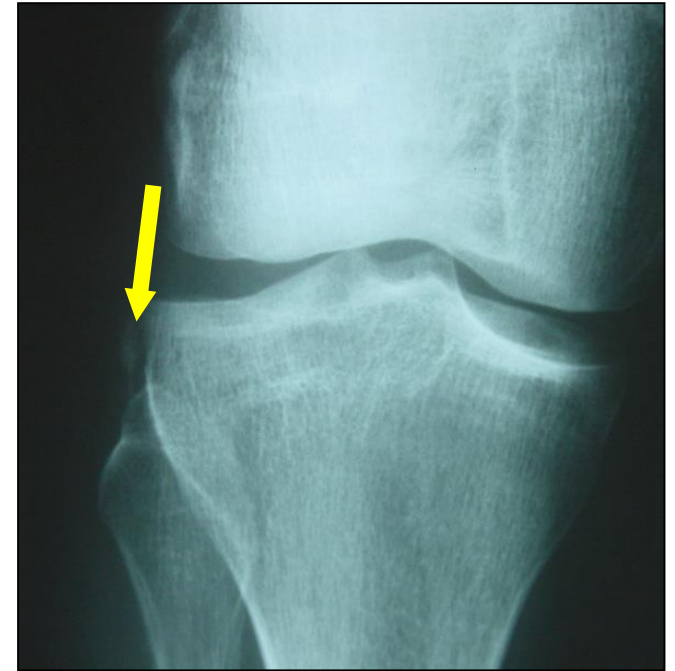
■ ACL
FEMALE

In Down Hill Skiers, ACL injuries are commonly associated with other knee lesions...



... to the postero lateral Tibial Plateau Fracture

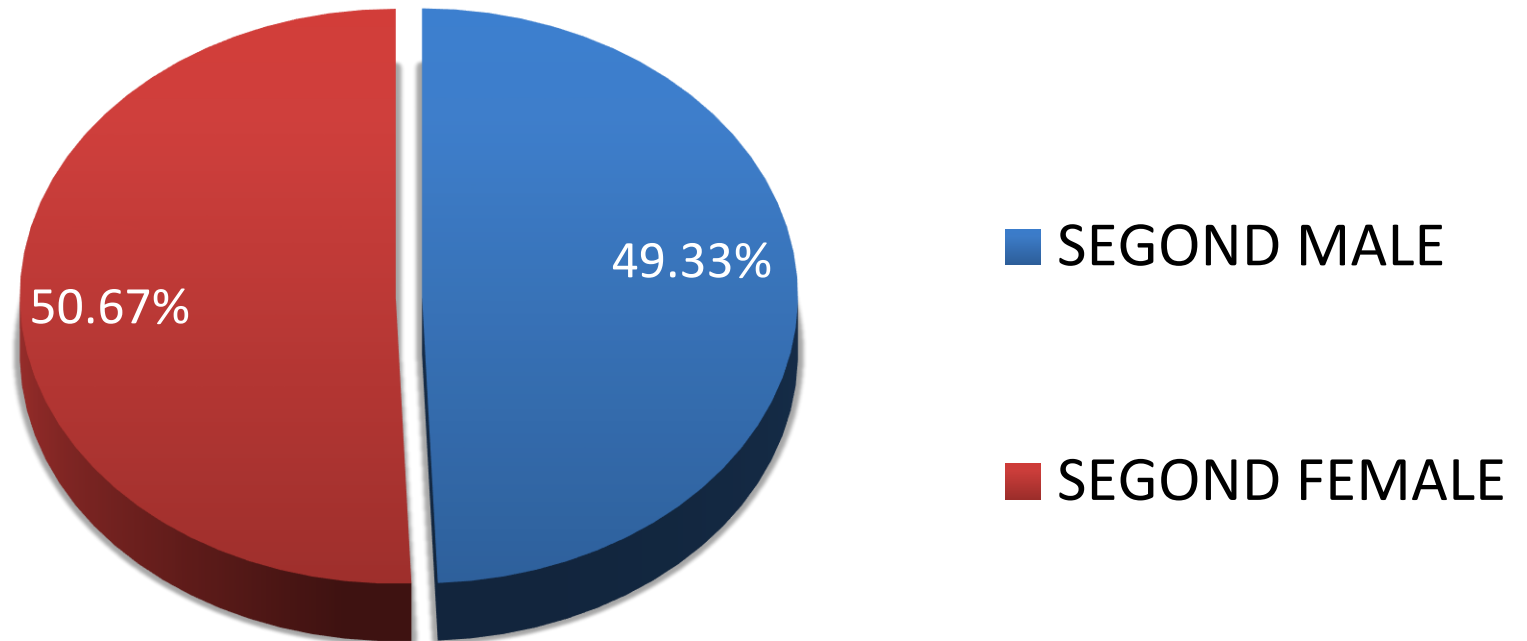
... to the Segond Fracture



... and lately is becoming more relevant the role of the Antero Lateral Ligament.

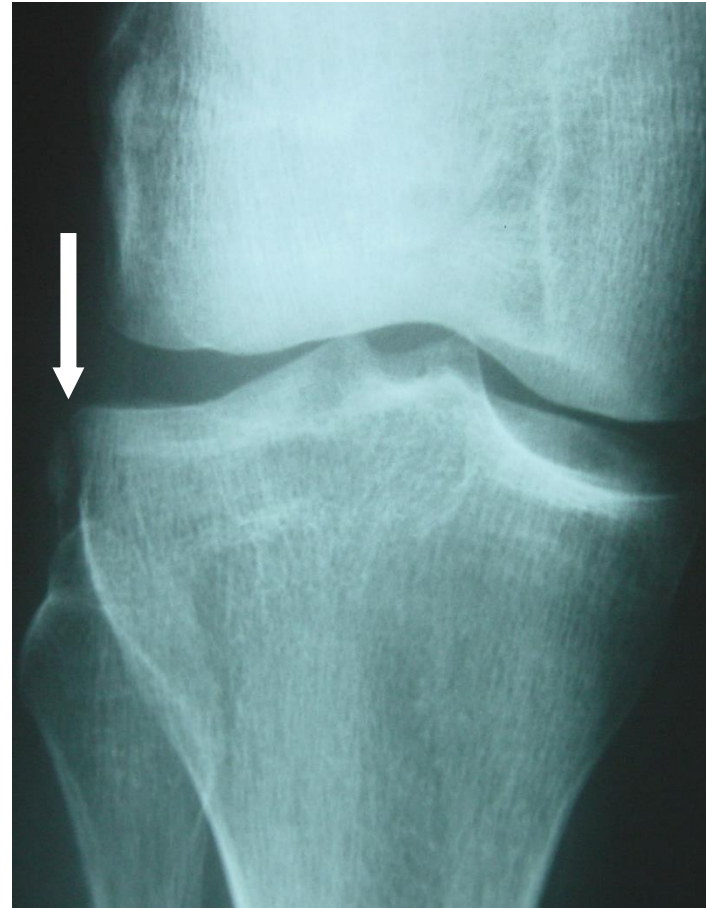
Segond Fracture

130 Cases in 10 seasons
Mean age 42 years old



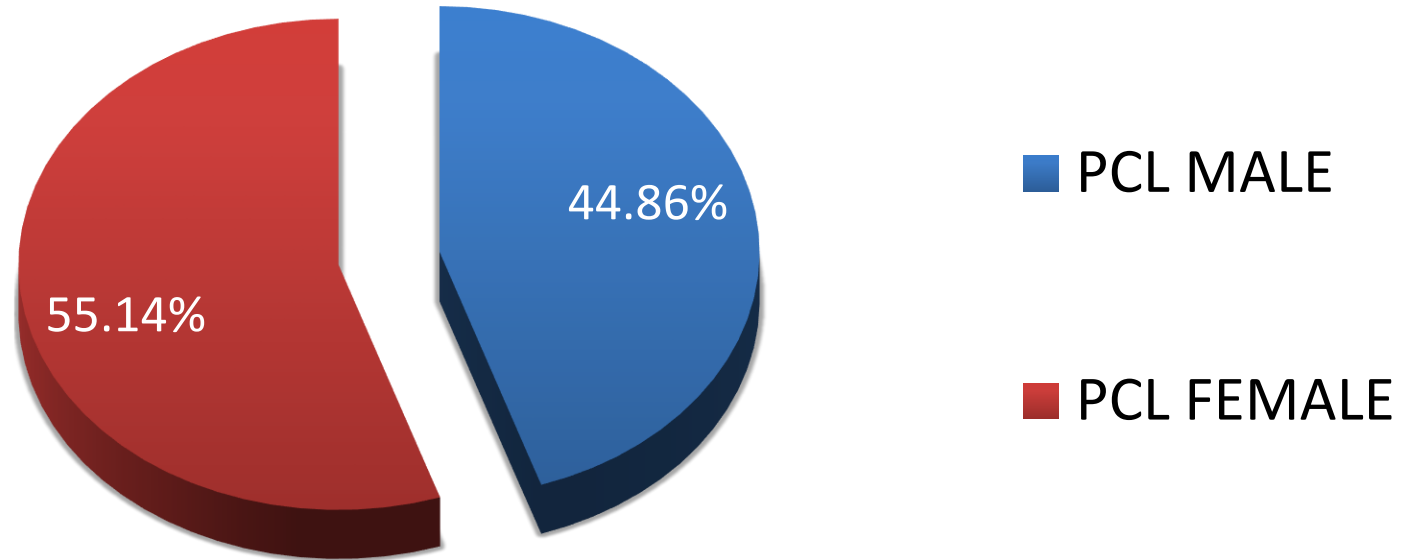
Segond Fracture

“Segond Lesion” *Progres Med*: 1879;7:297,319,340,0,419



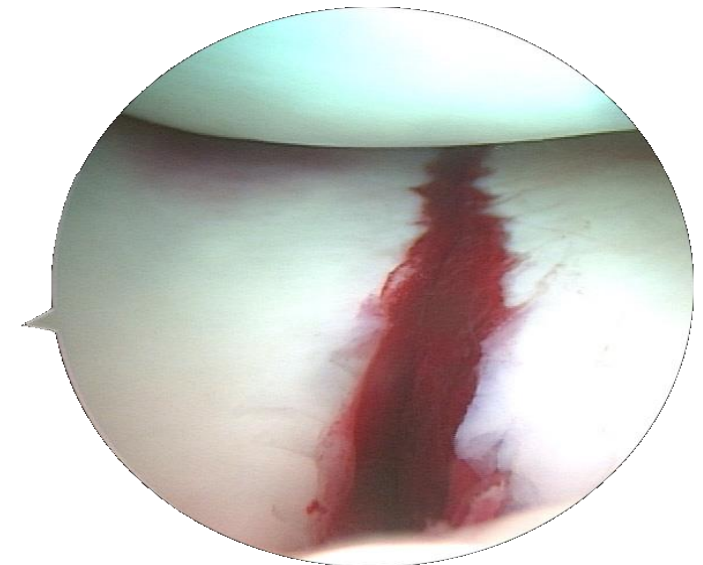
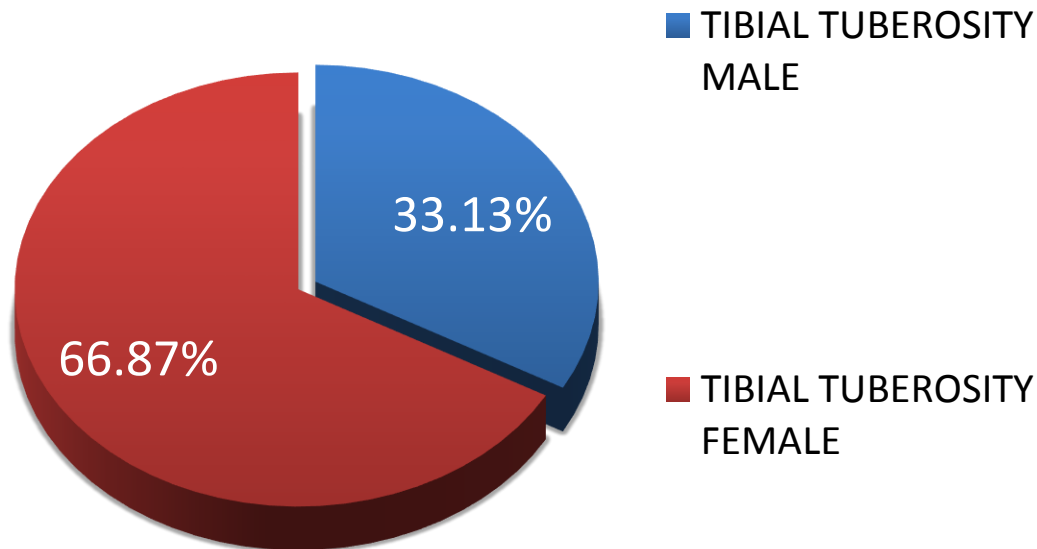
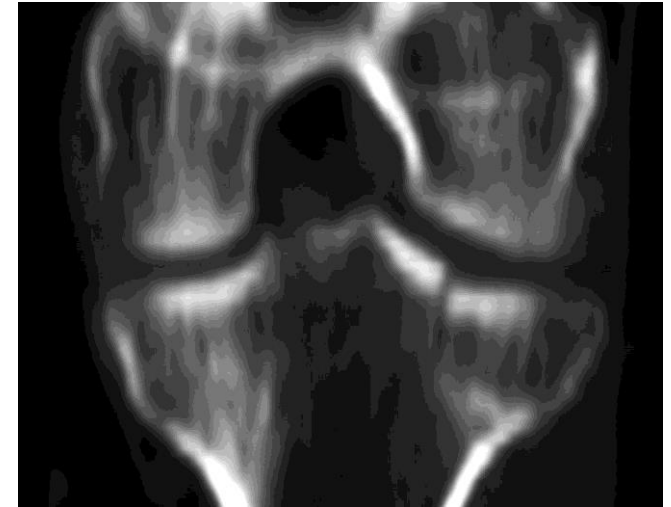
Posterior Cruciate Ligament

23 Cases in 10 seasons
Mean age 34 years old



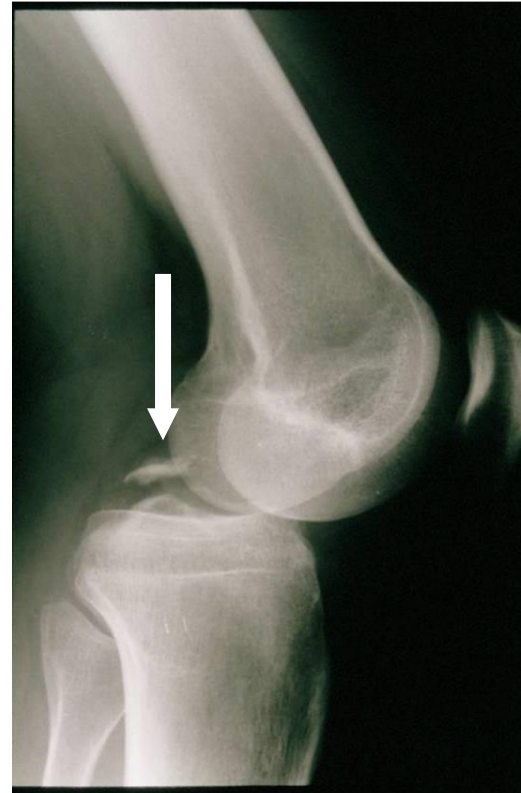
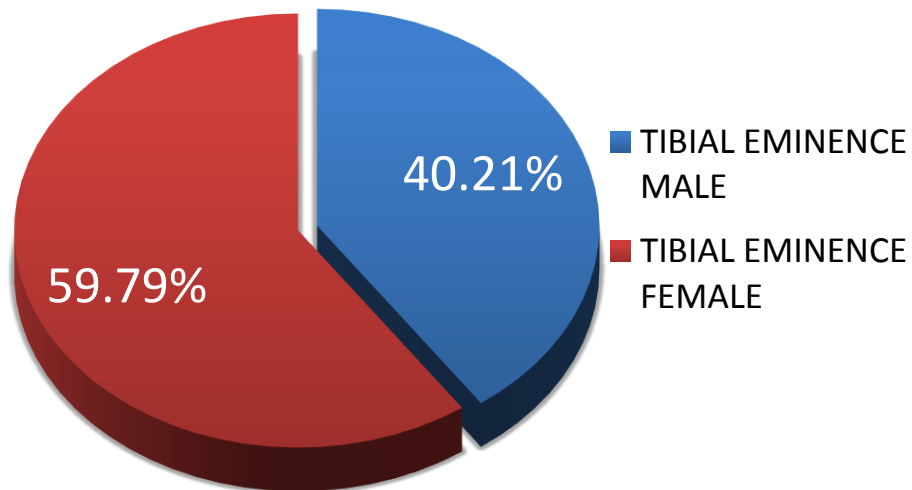
Tibia Plateau Fractures

450 Cases in 10 seasons
Mean age 42 years old



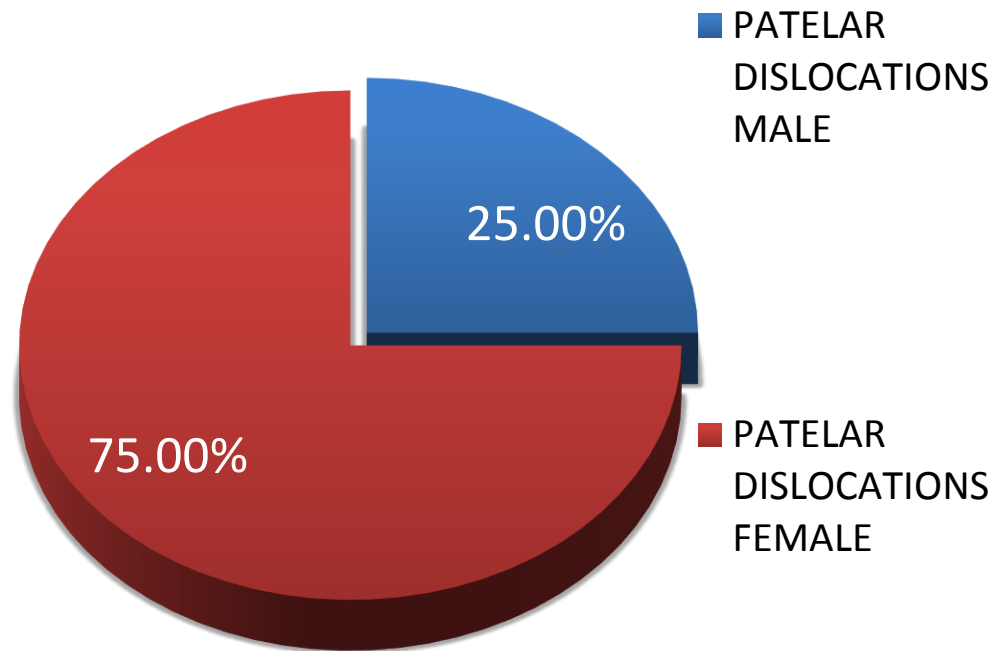
Tibial Eminence Avulsion Fracture

320 Cases in 10 seasons
Mean age 36 years old



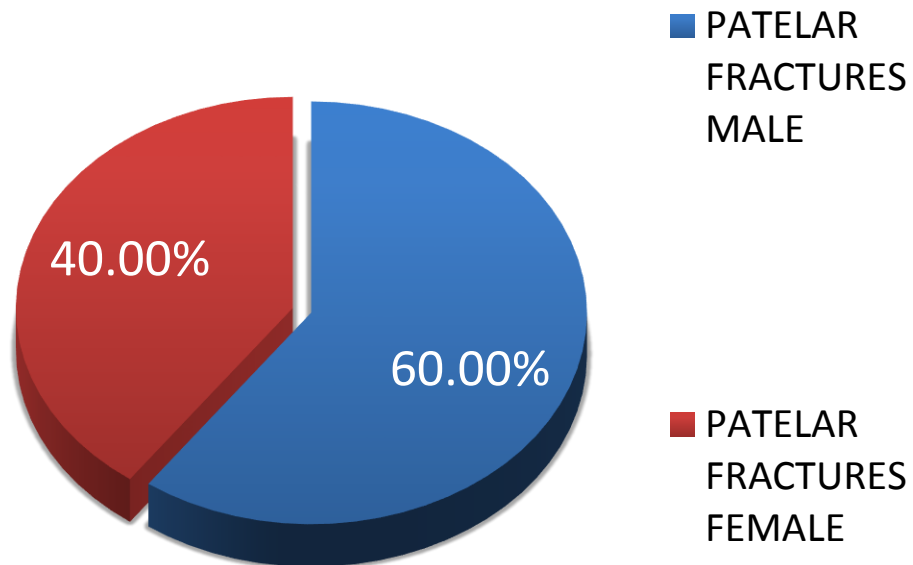
Patelar Dislocation

27 Cases in 10 seasons
Mean age 31 years old



Patellar Fractures

12 Cases in 10 seasons
Mean age 17 years old



Knee Cuts – wounds?

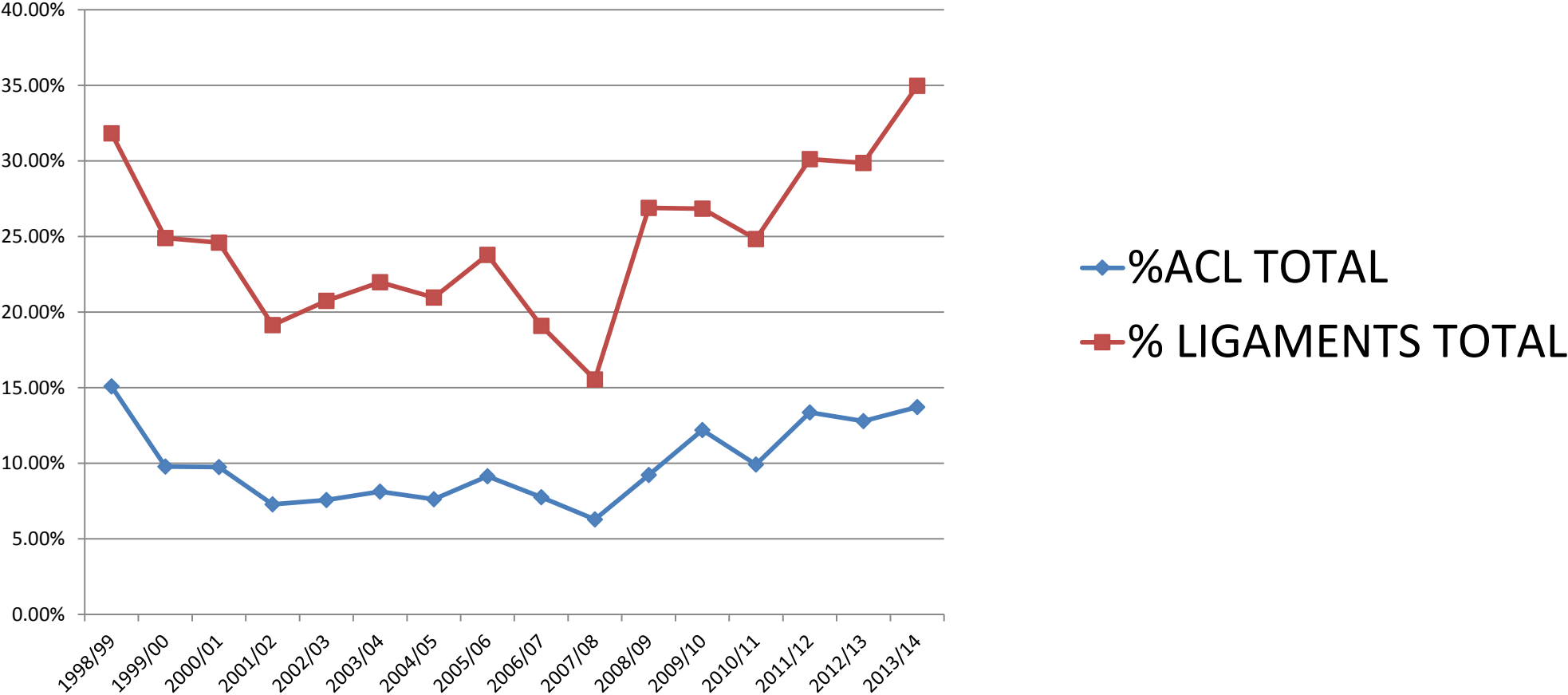


**35 Cases in 10
seasons**

Evolution of Injuries

Knee ligaments and ACL (related to 1.000 injuries)

KNEE LIGAMENTS



Conclusion

- Knee Ligament Injuries are more common in Down Hill Skiers compared to Snowboarders
- **Half of knee ligament injuries occur associated with other diagnosis.**

Conclusion

- **Medial collateral ligament injuries tend to occur as an isolated injury.**
- **Females are more frequently involved in knee ligament injuries and TEAF.**

Thank you for your attention



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