

Baqueira-Beret Medical Center



traumatologia i medicina
d'esports d'hivern

Dr. Aleix Vidal i col·laboradors

STATISTICAL ANALYSIS OF ACL INJURIES IN SNOW SPORT ACCIDENTS

Baqueira Beret 2005-2015

Main data

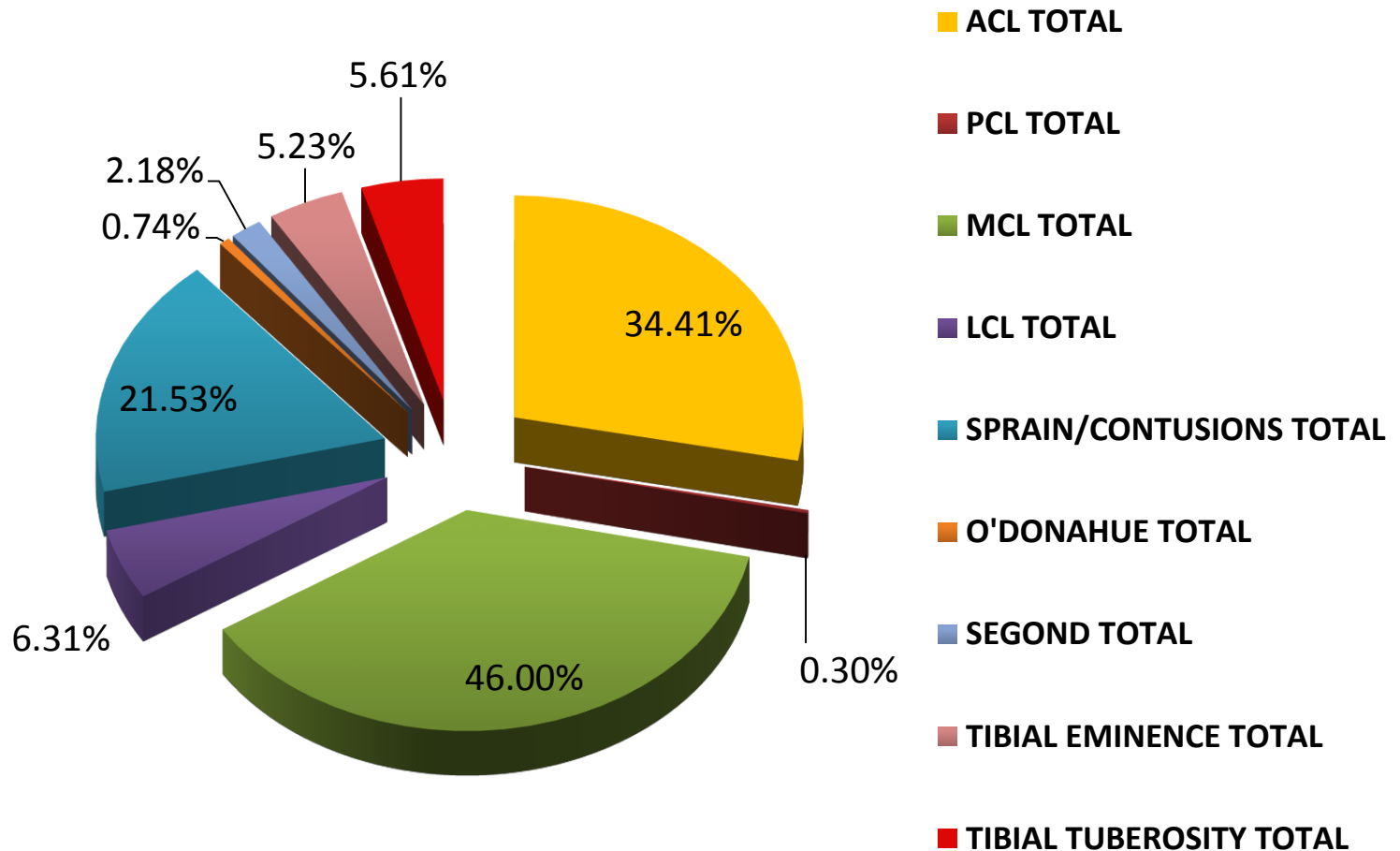


Data

- From **2005 to 2015**, Baqueira-Beret received more than **6,7 million visitors**
- During these 11 ski seasons, **30.477 snow sport lesions** have been treated at Centro Médico Baqueira.

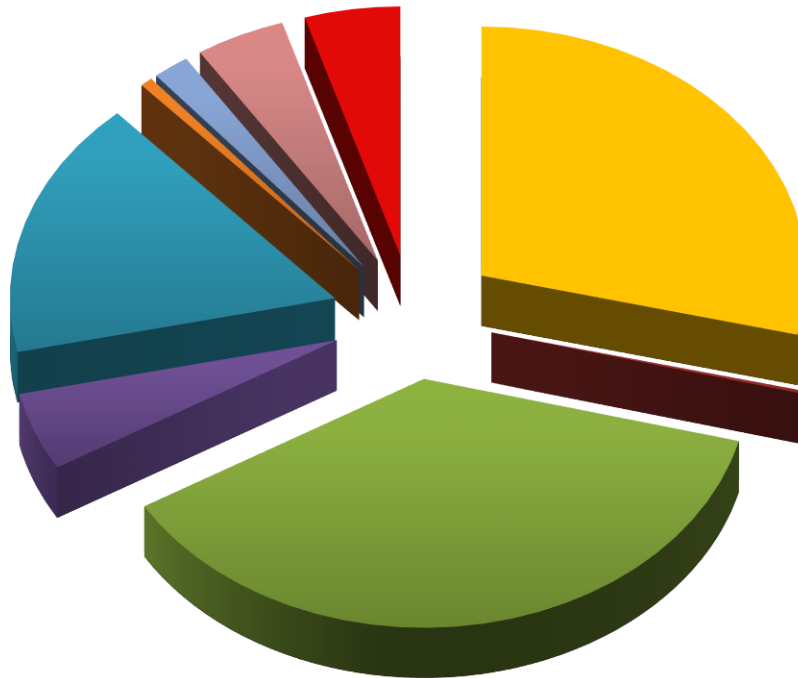
Knee Injuries. Total

10.319 knee injuries in 11 seasons





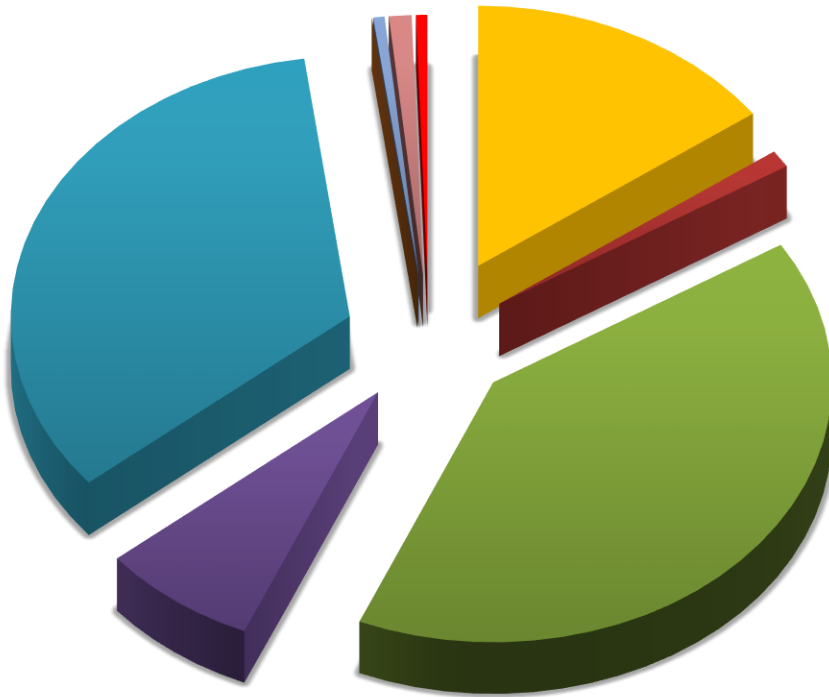
Knee Injuries



- ACL TOTAL
- PCL TOTAL
- MCL TOTAL
- LCL TOTAL
- SPRAIN/CONTUSIONS TOTAL
- O'DONAHUE TOTAL
- SEGOND TOTAL
- TIBIAL EMINENCE TOTAL
- TIBIAL TUBEROSITY TOTAL

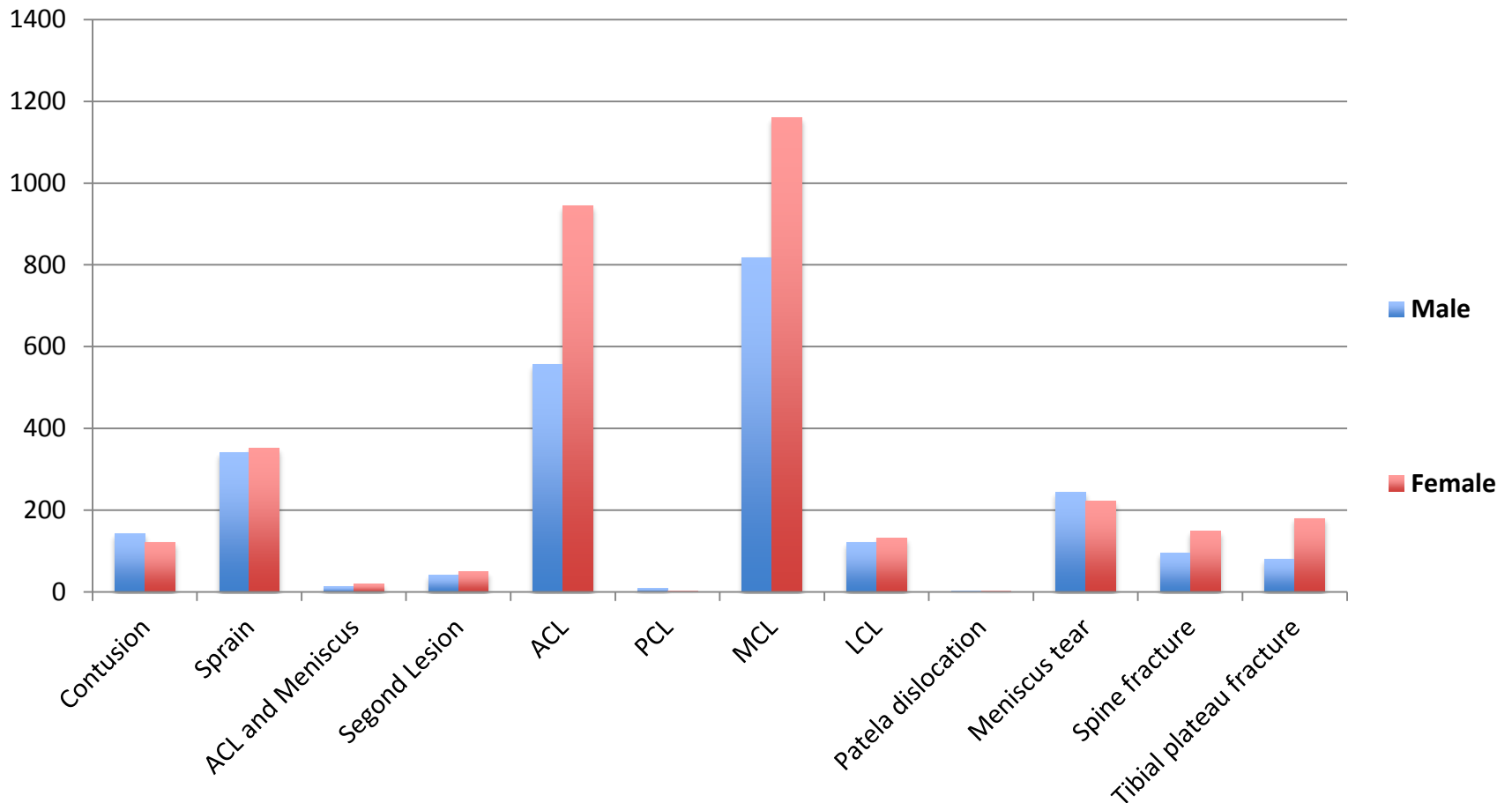


Knee Injuries



- ACL TOTAL
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Knee Injuries Diagnosis in absolut numbers and gender distribution



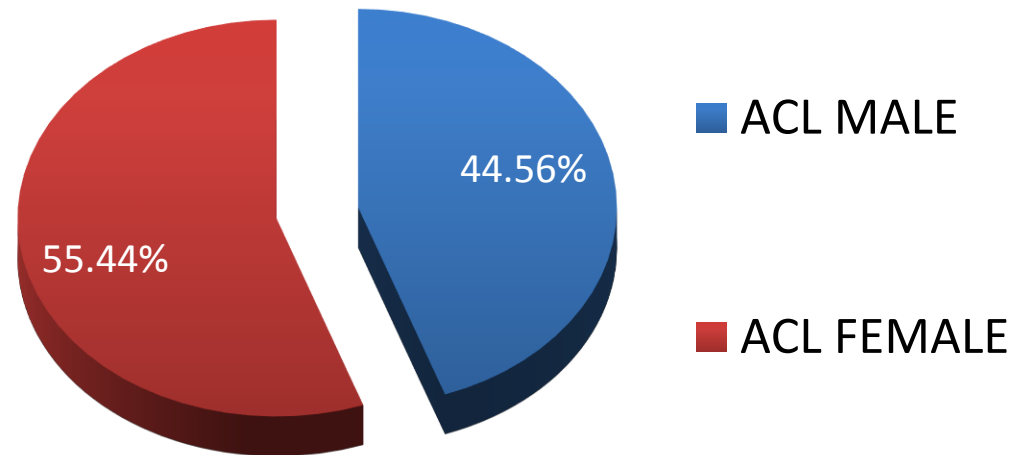
Knee Injuries Diagnosis

in absolut numbers and gender distribution

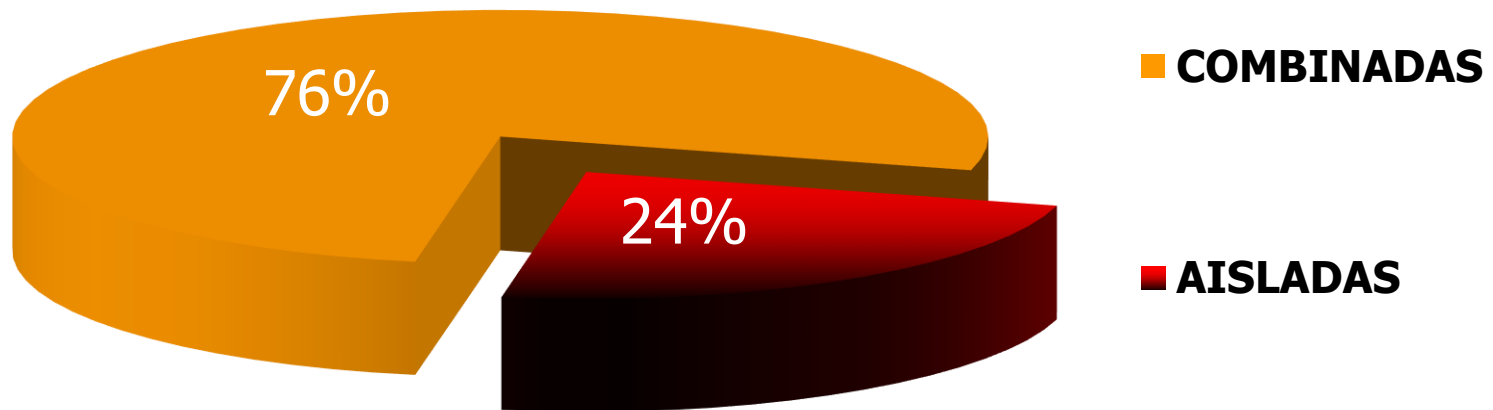
INJURY TYPE	ODDS RATIO	IC 95%	P VALUE
CONTUSION	1,18	0,91 – 1,52	0,18
ACL	1,52	1,34 – 1,73	<0,0001
PCL	0,16	0,017 – 0,79	0,008
MCL	1,07	0,95 – 1,19	0,02
LCL	0,79	0,61 – 1,03	0,08
MENISCAL TEAR	0,65	0,53 – 0,79	<0,0001
PATELAR DISLOCATION	1,1	0,12 – 13,26	0,91
TIBIAL SPINE	1,15	0,88 – 1,51	0,28
TIBIAL PLATEAU FRACTURE	1,69	1,29 – 2,25	0,0001

Anterior Cruciate Ligament

3.077 Cases in 11 seasons
Mean age 39 years old

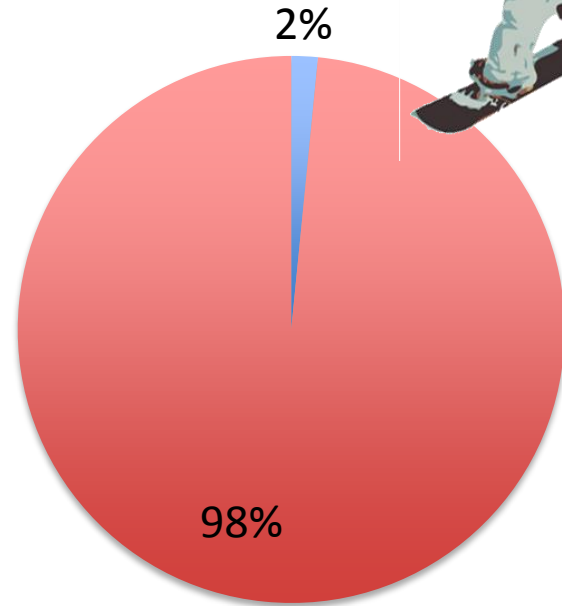
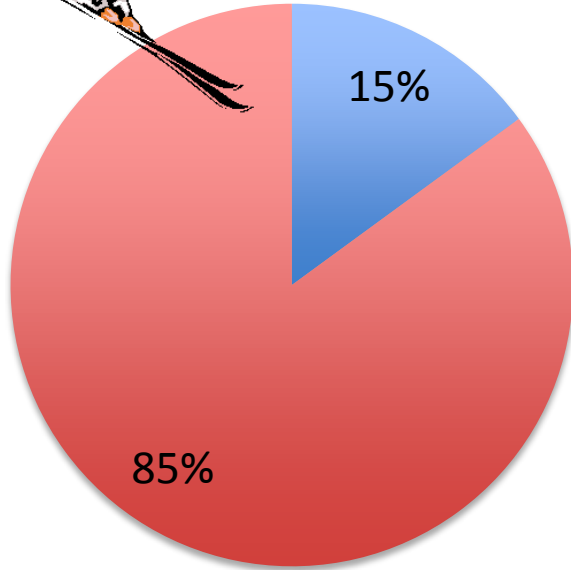


A.C.L. in Down Hill Skiers



2/3rds of ACL injuries were commonly associated with other knee lesions...

ACL Injuries related to Total Injuries



■ LCA

■ Other Injury

■ LCA

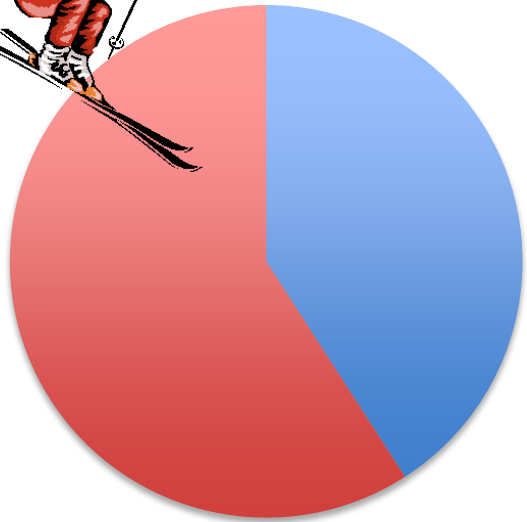
■ Other Injury

OR: 11,06

IC (95%): 7,7-16,2

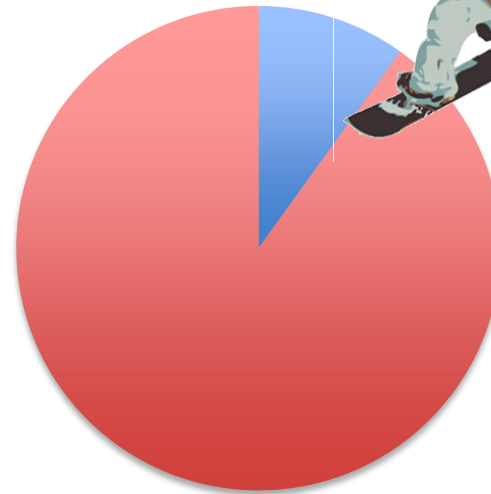
P<0,001

ACL Injuries related to Knee Injuries



■ LCA

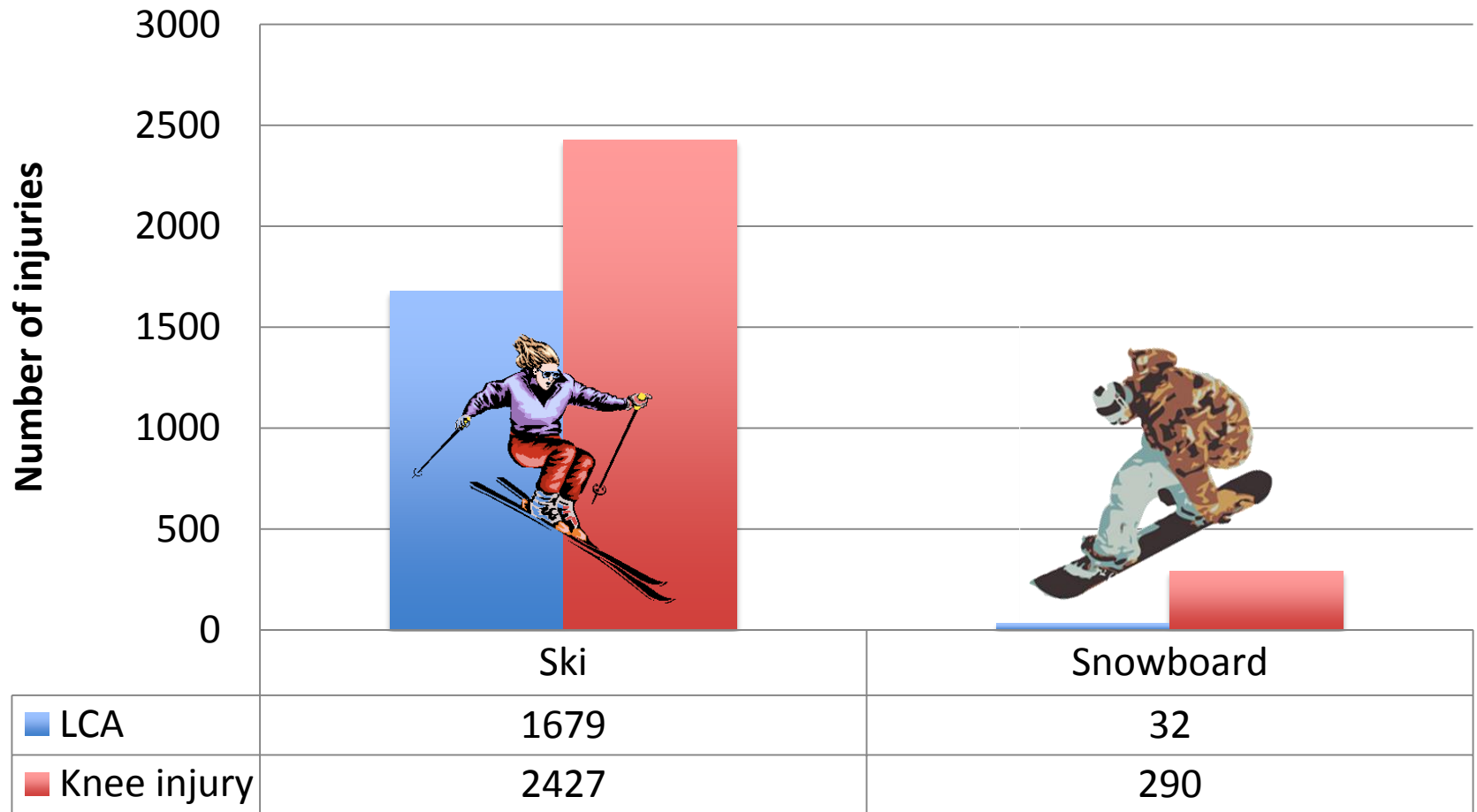
■ Knee injury



■ LCA

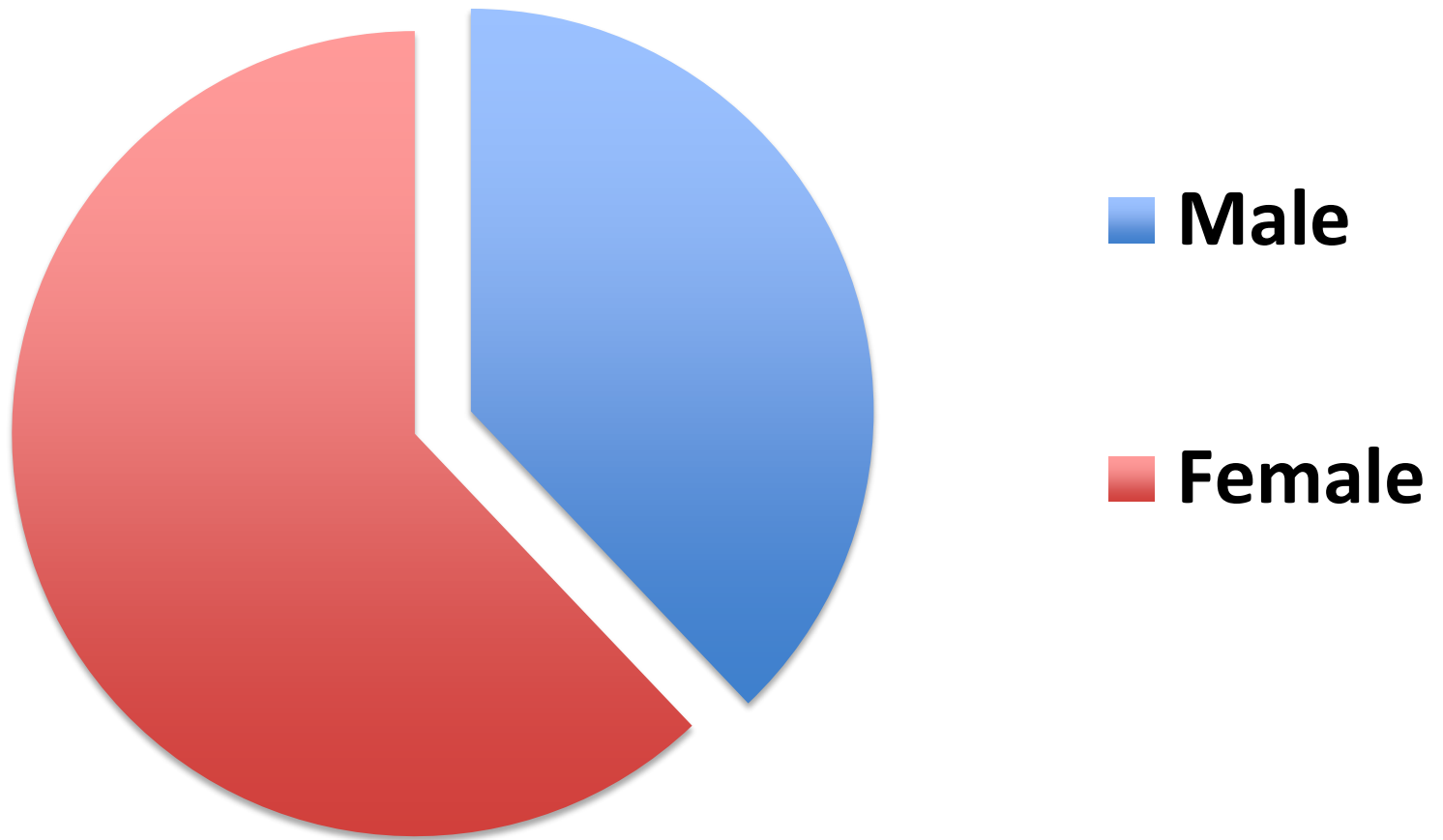
■ Knee injury

ACL Injuries related to Knee Injuries

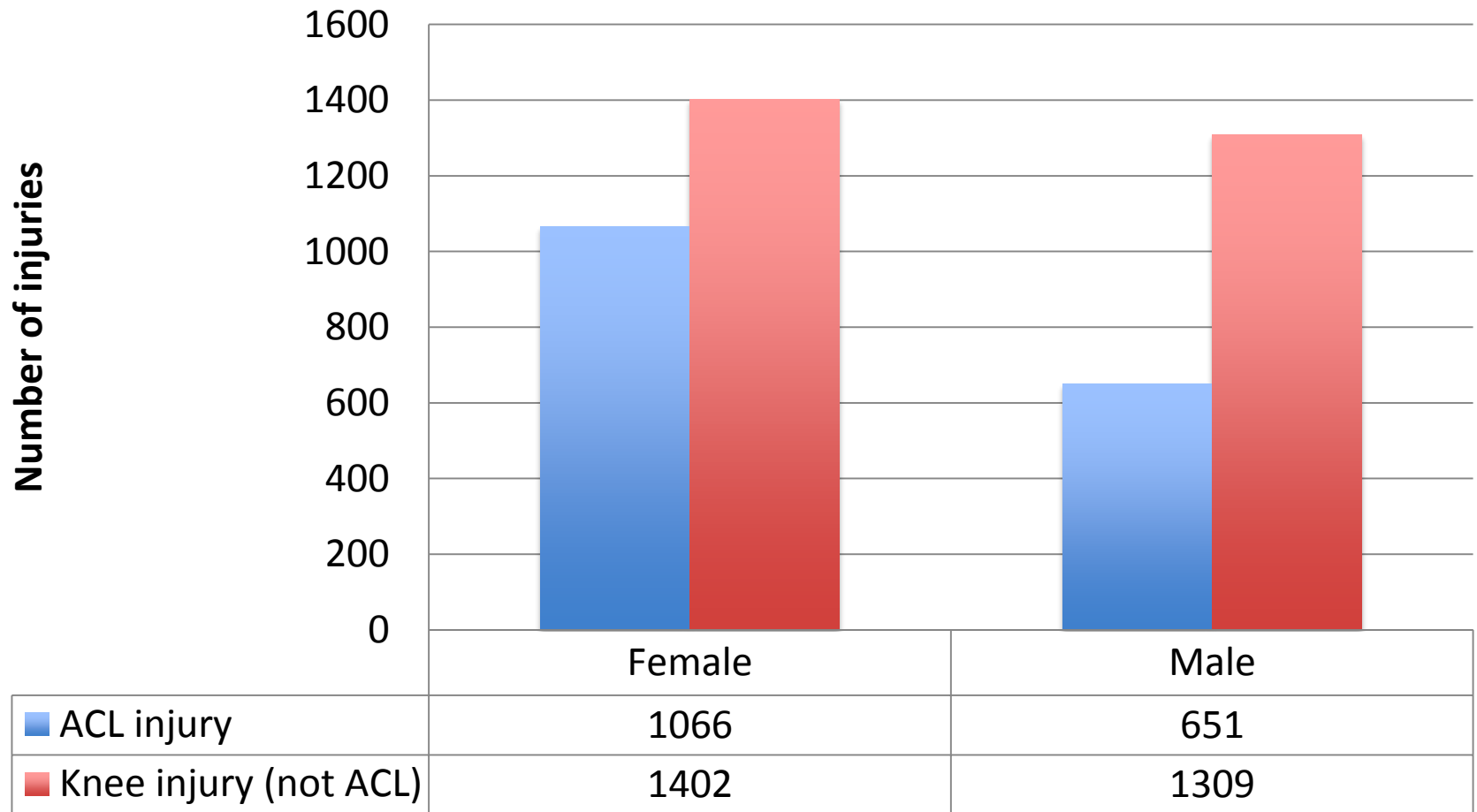


OR: 6,2 IC (95%): 4,3-9,2 P<0,001

ACL Injuries by Gender

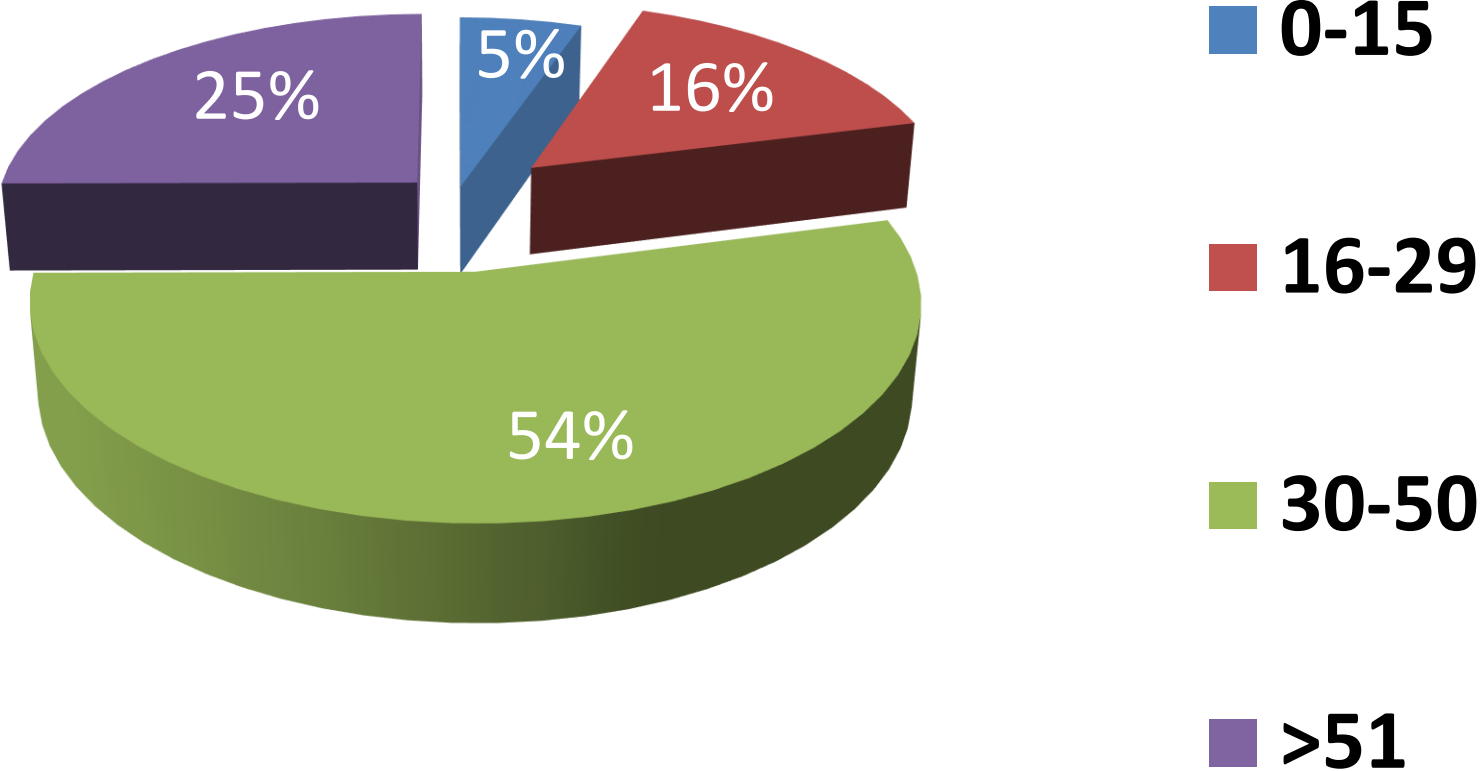


ACL and Knee Injuries by Gender

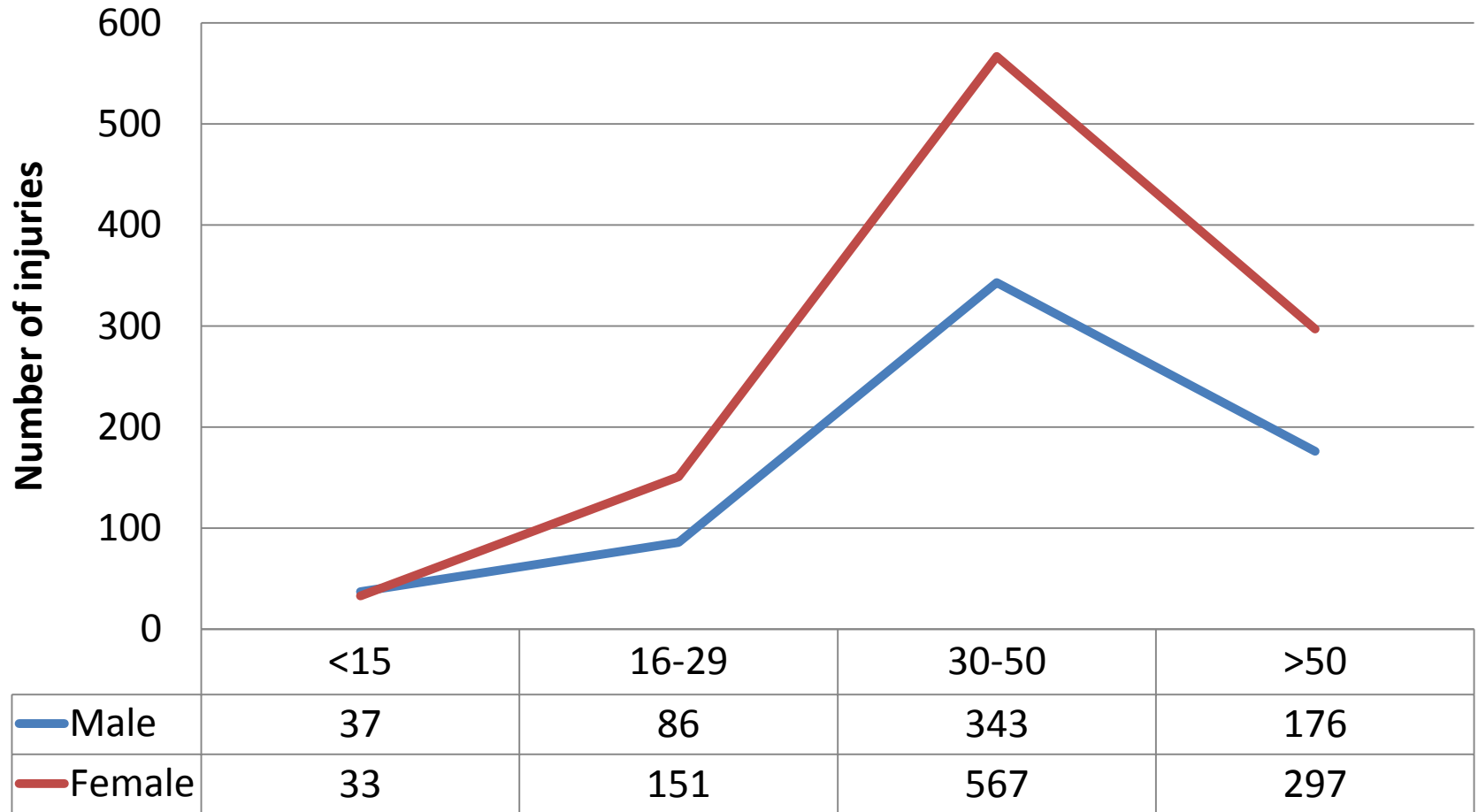


OR: 1,52 IC (95%): 1,34-1,73 P<0,001

ACL Injuries by Group Age Distribution

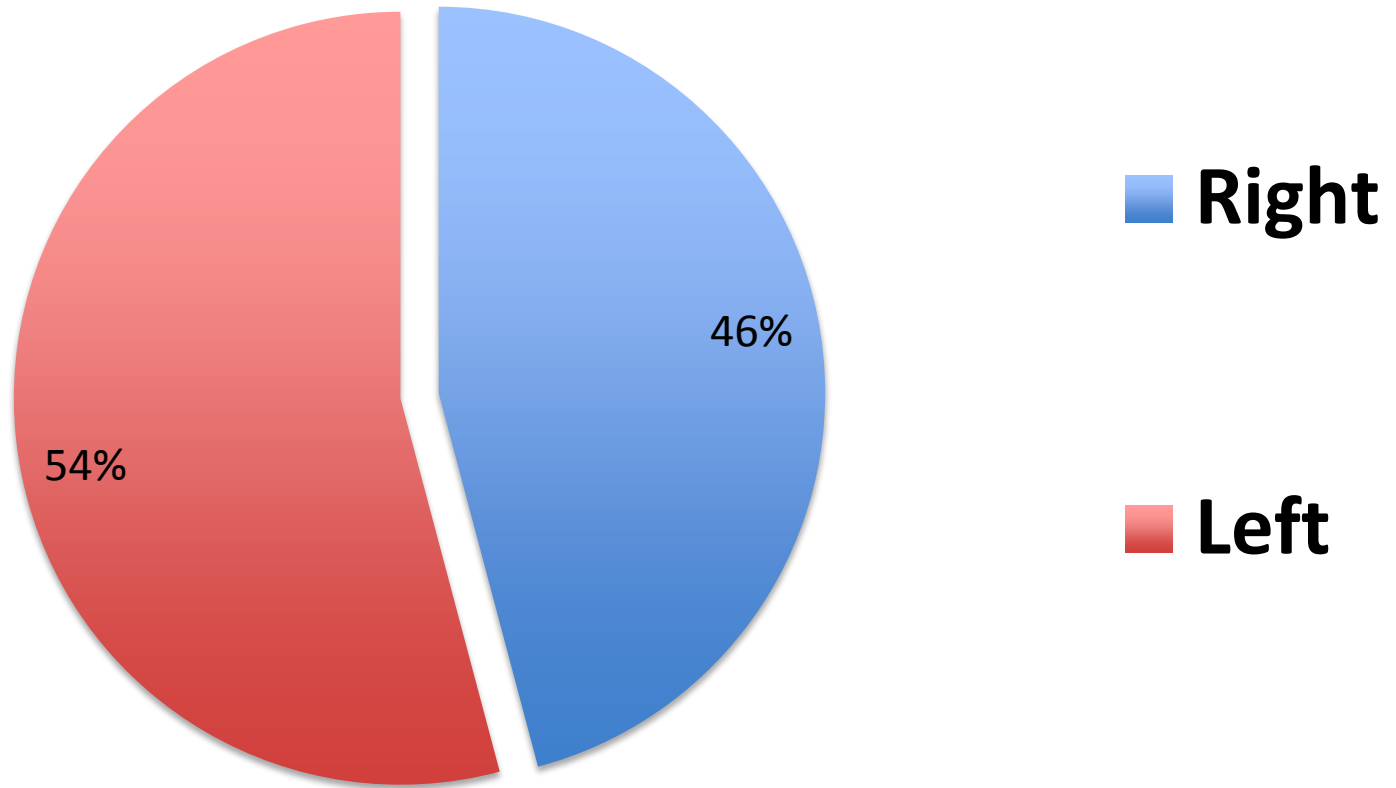


ACL Injuries by Age and Gender

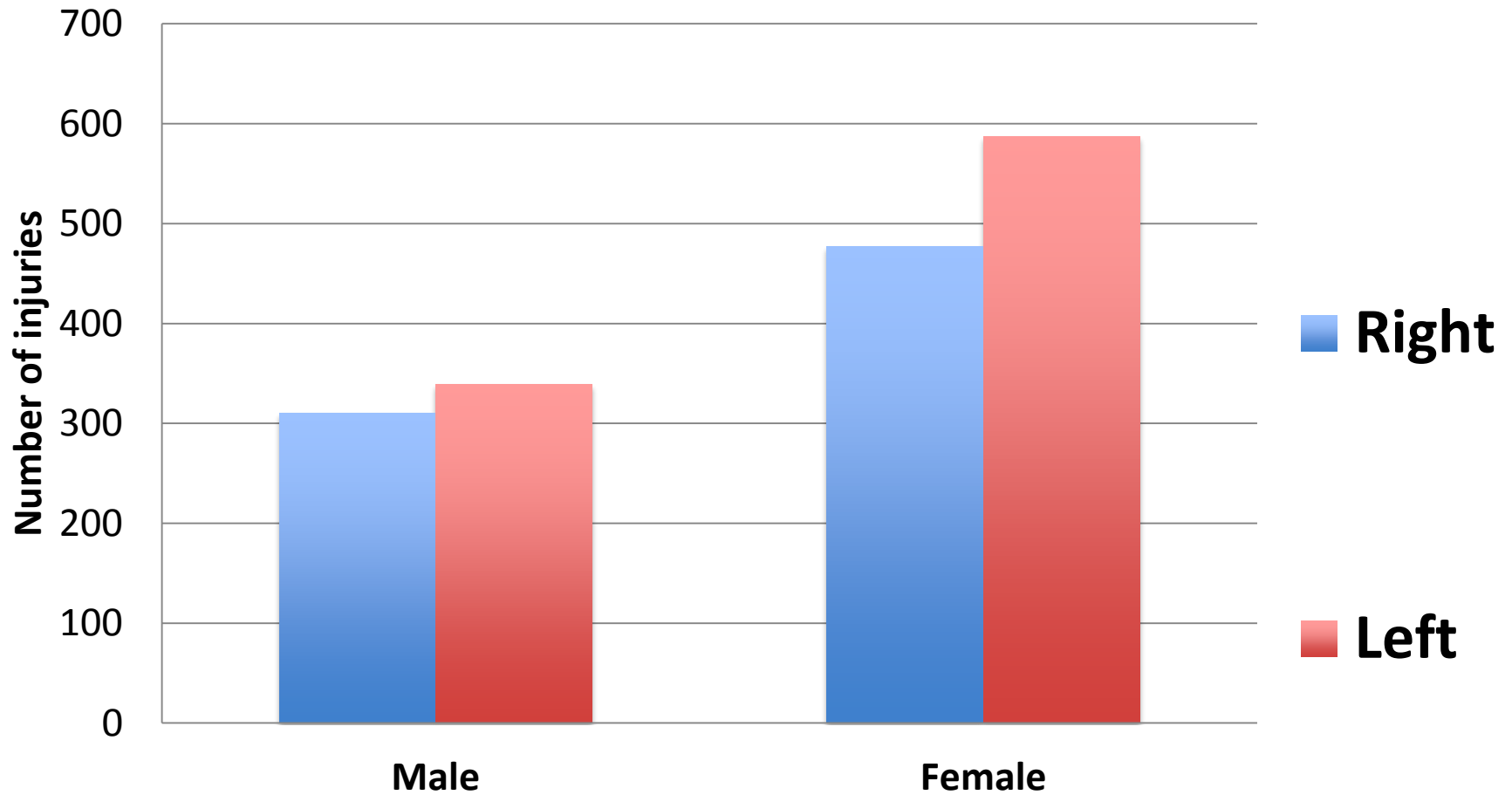


P value	0,5	0,02	<0,0001	0,008
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ACL Injuries. Side Distribution



ACL Injuries. Side and Age Distribution



OR: 1,12 IC (95%): 0,92 – 1,37 P=0,23

ACL Injuries in B.B Ski Resort

Conclusions

ACL injuries are:

- More frequent in Females
- Age between 30 and 50 y.o.
- More prevalence in Ski compared Snowboard
- Left side is more frequent compared to right side

Thank you for your attention



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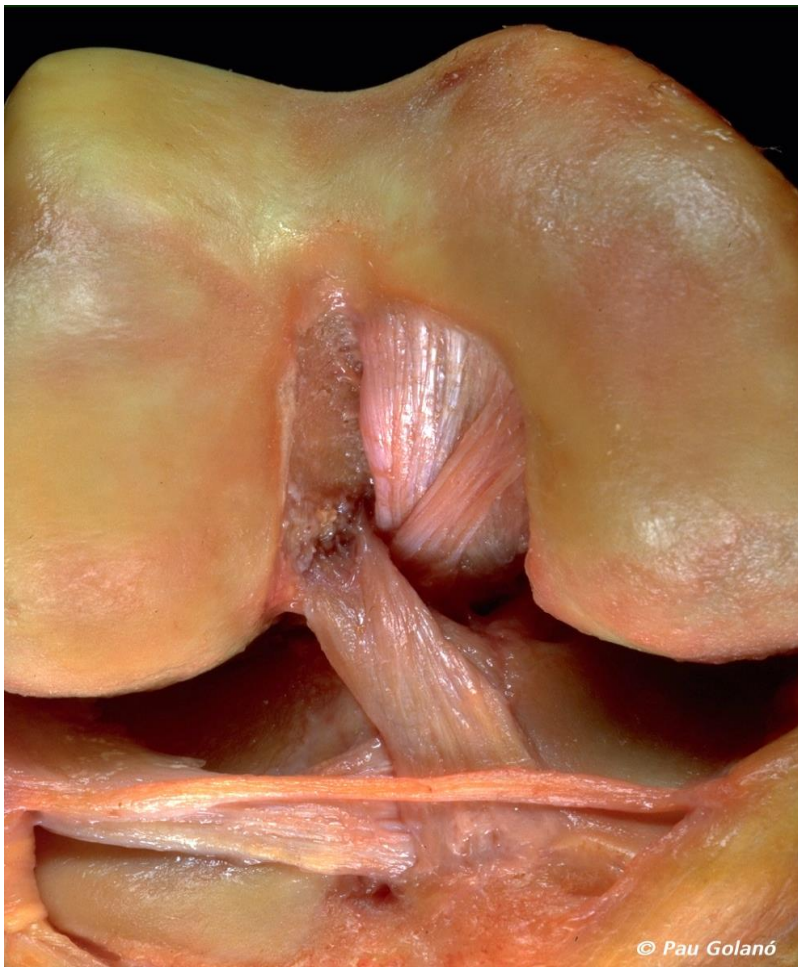
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How facts influenced our rationale ...

ACL Reconstruction

We strongly believe that Horizontalizing the ACL graft in both A-P and Lateral planes mimics the Anatomy and prevents Pivoting.



© Pau Golanó



PL

Normal anatomy of the ACL shows an anteriorly inserted antero-medial bundle and a horizontal postero-lateral bundle.

2008. Three facts influenced our rationale:

1.- ACL injuries are commonly associated with other knee lesions

2.- A better understanding of the ACL anatomy

3.- MRI findings of constant postero-lateral Tibial Plateau Fracture in ACL injuries

All Inside Technique for ACL Reconstruction

Cortical Suspension System for Graft Fixation enhances the contact area between tendon and bone, promoting Creeping Substitution.

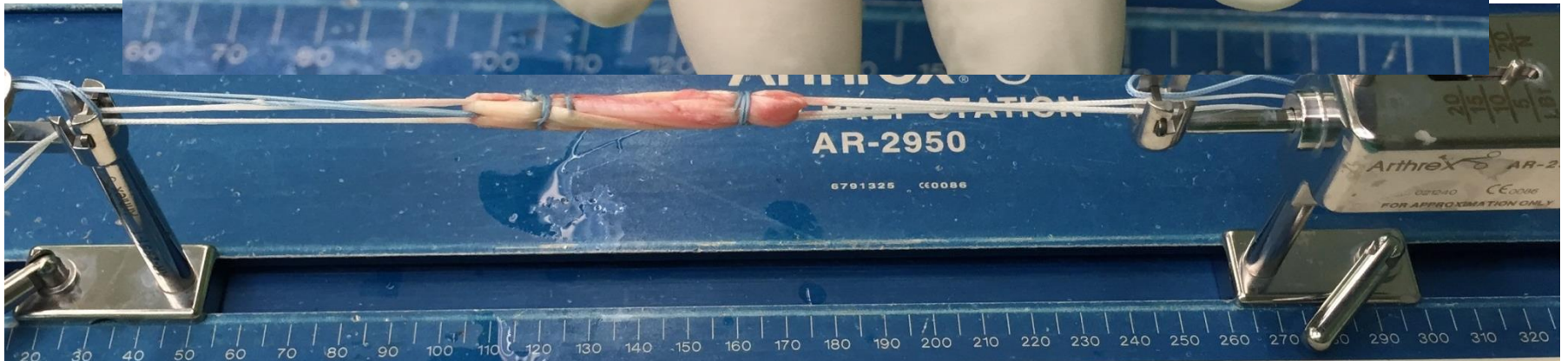
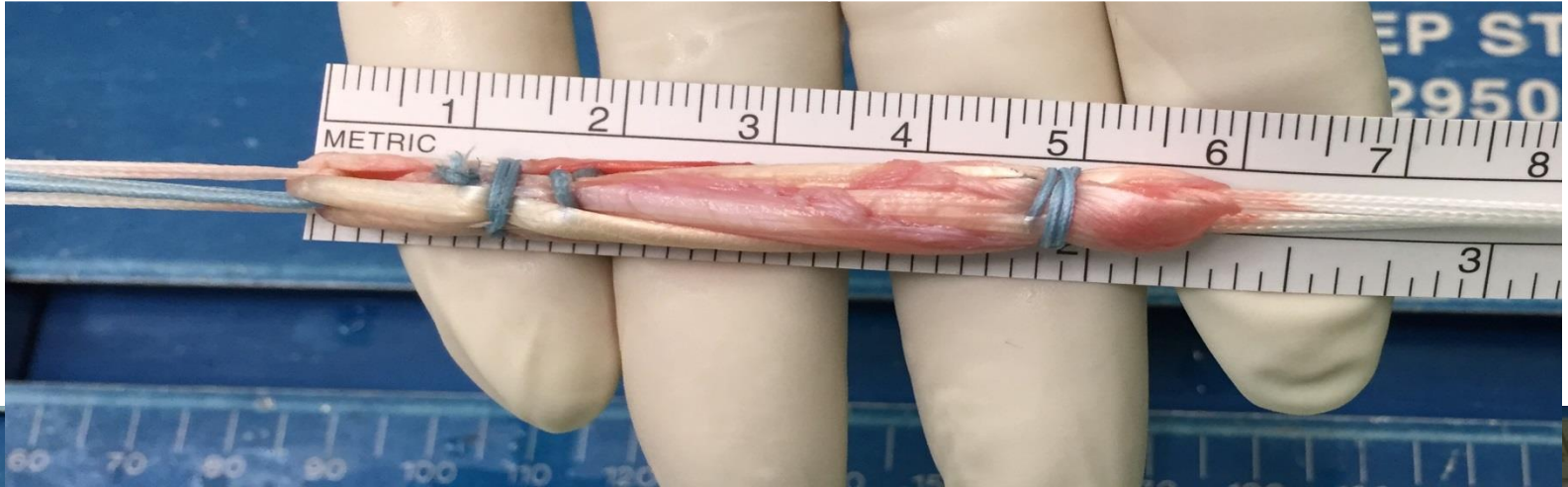
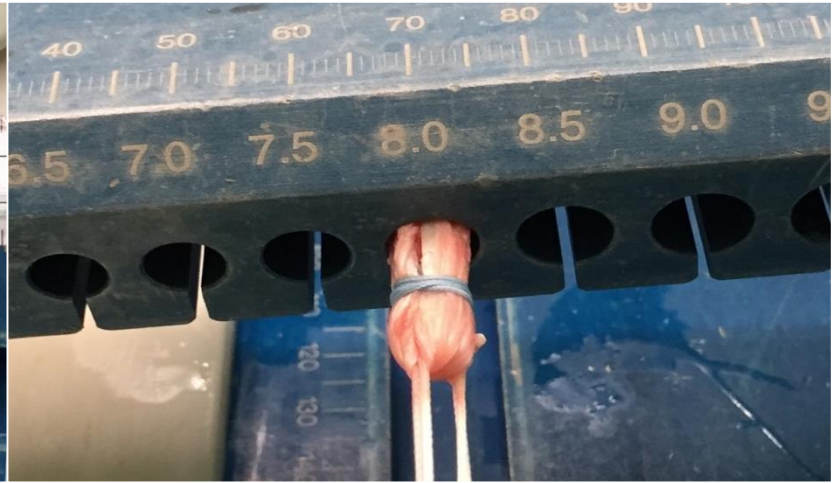
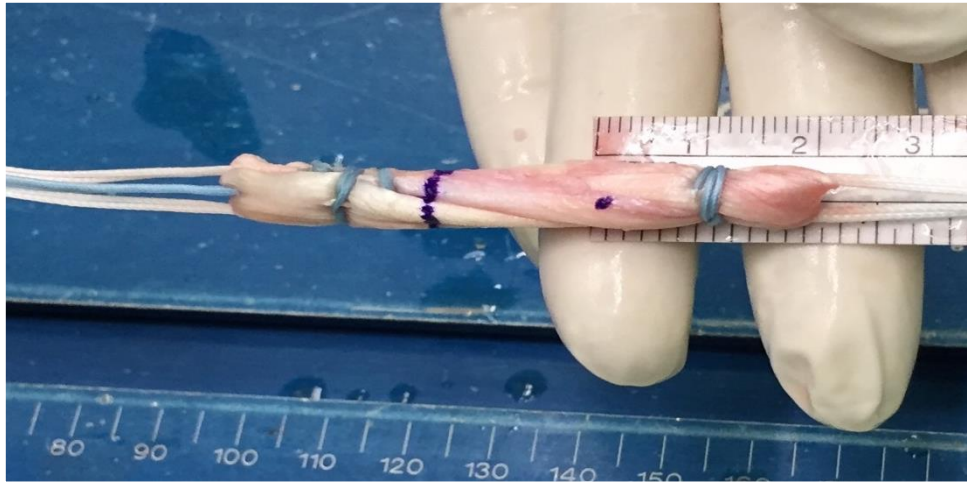


What is All Inside ACL Reconstruction ?

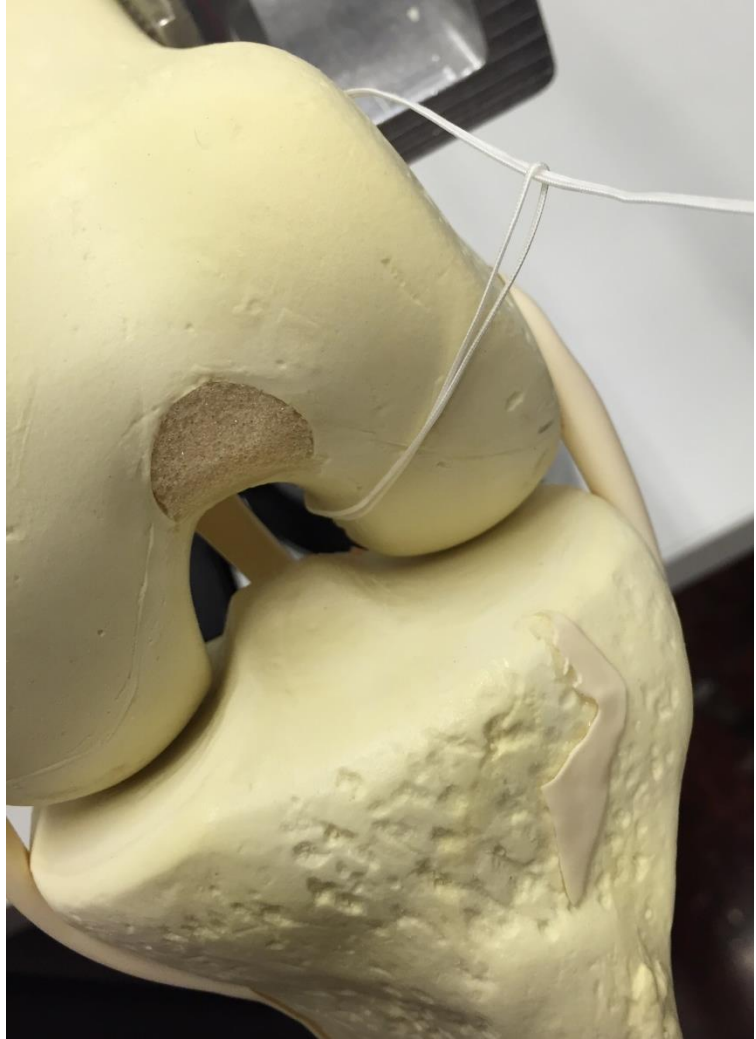
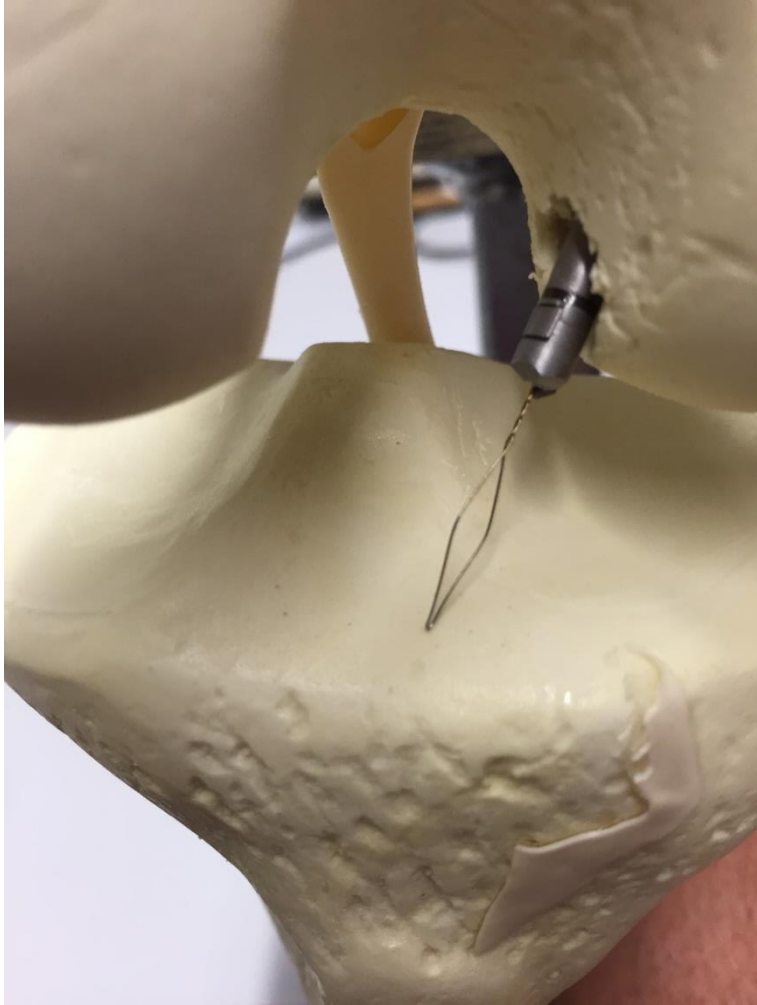
Surgical Pearls

For the present study we have reviewed 85 patients operated between 2012 – 2014 with two different Graft Fixation Techniques.

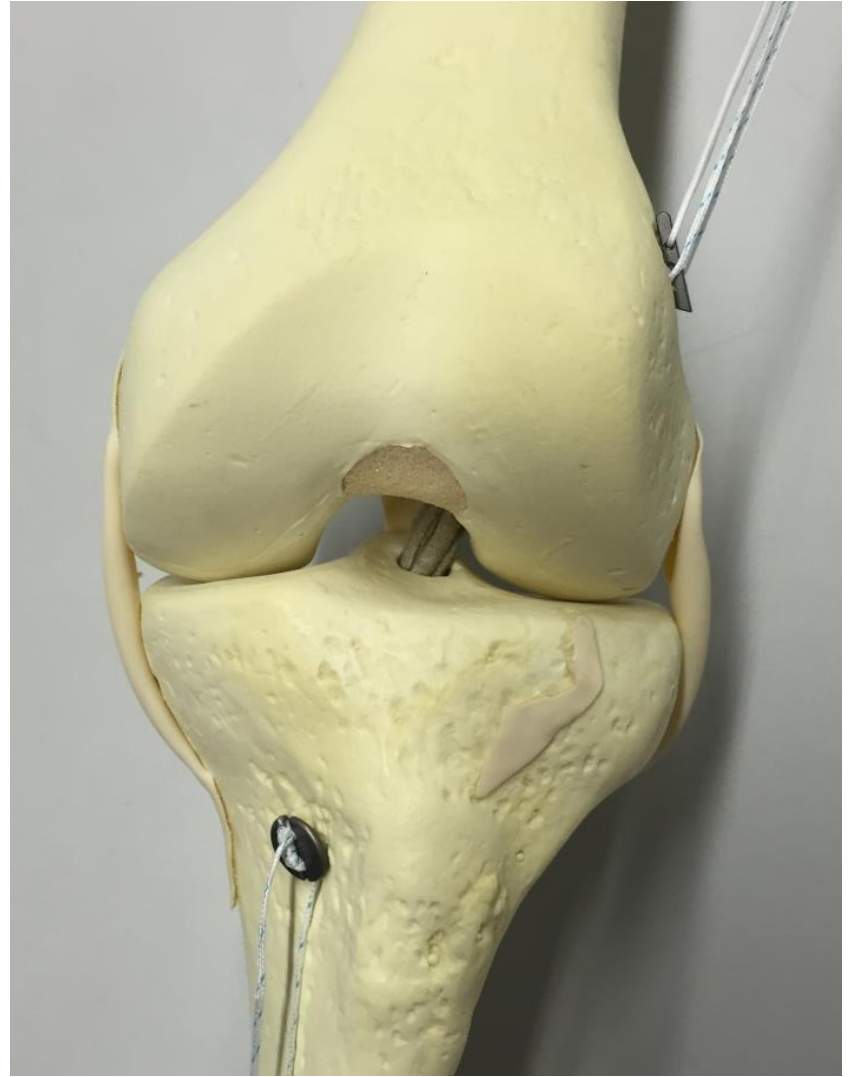
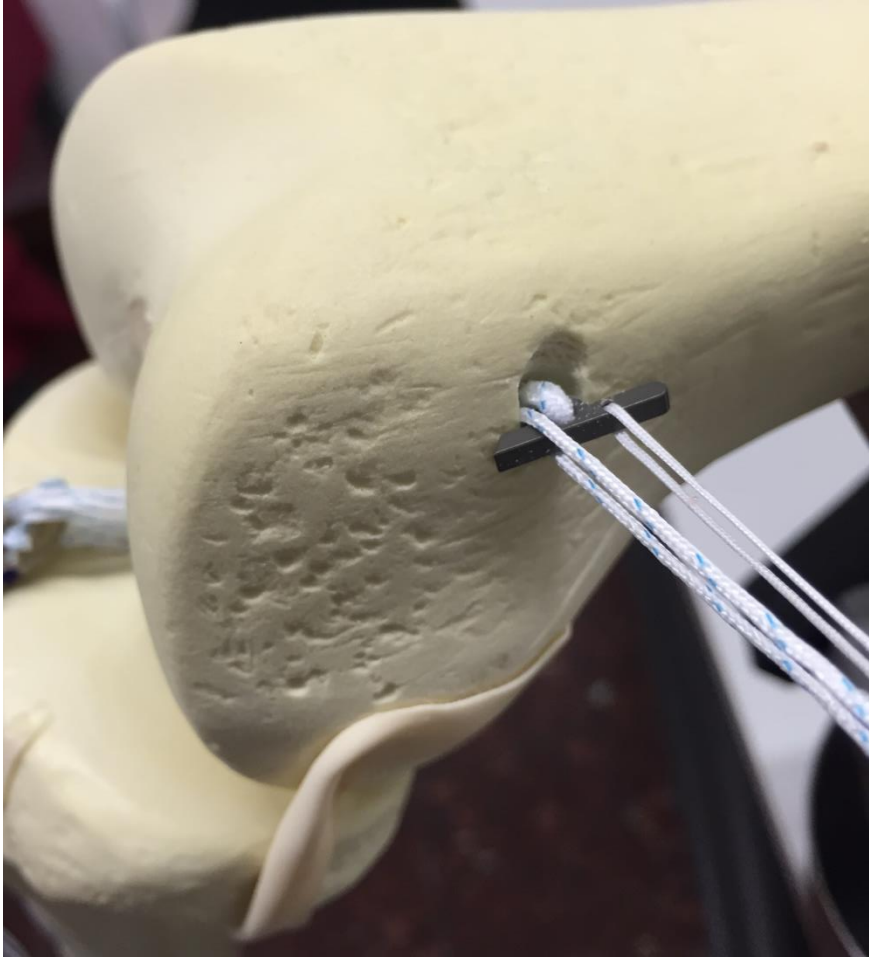












Materials & Methods

Cases	25	60
Graft	Autologus quadruple Semitendinosus and Gracillis.	Autologus quadruple Semitendinosus

Sex	13 M 12F	24M 36F
Age	36.0 yrs.	37.3 yrs.
Speciality	9 SK 4 SB	23 SK 6 SB

+ Lachman	25	60
+ Anterior Drawer	25	55
+ Pivot shift	15	44
+ Magn.imaging	25	60

Medial Meniscus	7	32
Lateral Meniscus	11	43
Bone Contusion	25	60
Marginal fracture Segond	2	10

Results

	Antero-Medial Portal N = 25	All Inside N = 60
Graft Length	-	From 4 to 7 cm
Graft Diameter	-	From 7 to 9 mm
Graft Tensioning	10° of knee flexion	0° of knee flexion
Mean Surgical Time	62 min.	65 min.

	Antero-Medial Portal N = 25	All Inside N = 60
Lachman +	6	12
Anterior Drawer +	5	8
Pivot shift +	8	13
Normal MRI at F Up	-	-

	Antero Medial Portal N = 25	All Inside N = 60
Subjective evaluation: rating from 1 to 10	9	9.2
Pain: rating from 1 to 10	3.0	3.0
Back to Ski/Snowb	20	-

Conclusions

All Inside ACL Reconstruction:

Similar clinical results compared to A-M portal

Avoids foreign body in bone tunnels

One single tendon graft is used

Technically demanding (learning curve)



avidal@tmeh.es