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# Long Term Outcome of Simultaneous Bilateral ACL Reconstruction

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**NORTH SYDNEY ORTHOPAEDIC  
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# Disclosures

Associate Professor Justin Roe

- Shareholder in 360KS
- Paid consultant for Enovis
- Paid speaker for Smith and Nephew
- Received institutional support from Smith and Nephew, Global Orthopaedics, Friends of the Mater Foundation

Professor Leo Pinczewski

- IP royalties from Australian Biotechnologies, Signature Orthopaedics
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- Research support from the Friends of the Mater Foundation, Smith+Nephew

# Simultaneous Bilateral ACLR

## ***Bilateral ACL injuries are seen in 4-11% over ~ 5 years***

Kvist Arthroscopy 2014, Wiggins et al 2016, Bourke 2012, Heath 2018, Manara 2022, Morgan 2016, Salmon 2005

## ***Advantages of simultaneous bilateral ACLR over staged ACLR***

- Single hospital admission & anaesthetic
- Less time off work
- Lower total cost Jari & Shelbourne 2002, Larson et al 2004
- Single rehabilitation & faster return to unrestricted activities



*viable surgical option*

## ***Yet the vast majority of bilateral ACL injured undergo a staged ACLR***

- 76% of US sports med surgeons would perform a staged ACL reconstructions as 2 separate procedures in a patient with bilateral ACL injuries Saadat et al Orthopaedic Reviews 2014

## ***Very limited evidence for Simultaneous ACLR*** Jari & Shelbourne 2002, Larson et al 2004

- Limited by single case reports or small sample size, n=5 to 28

Journal of Clinical Orthopaedics and Trauma

Bilateral simultaneous anterior cruciate ligament reconstruction: A case series and review of the literature  
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Document the long-term outcome of  
***simultaneous bilateral ACLR***  
with respect to patient satisfaction,  
rate of return to sport and  
prevalence of further knee injuries.

## Prospective database of ACLR

### Inclusion criteria:

- Simultaneous arthroscopic bilateral ACLR conducted at a single institution by two orthopaedic surgeons (LAP and JR) between 1993 and 2021

### Exclusion criteria

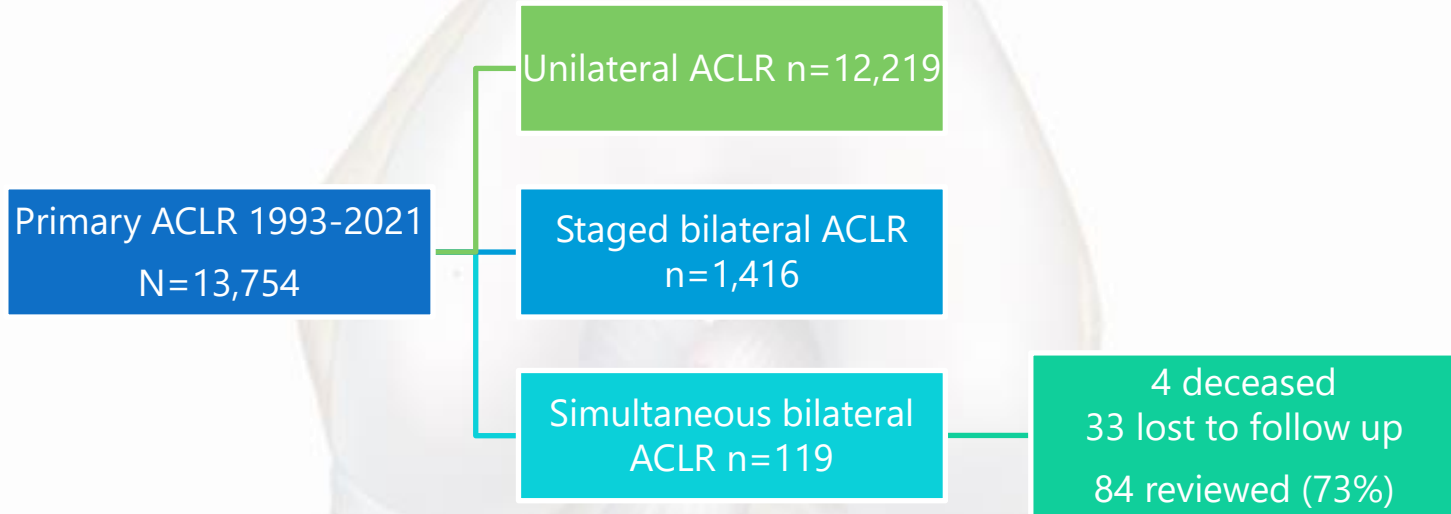
- did not provide consent to research
- receiving compensation for injury

## Follow up Survey

1. How satisfied are you with the results of your bilateral ACL surgery?
2. Would you have the same surgery again in the same circumstances?
3. Did you ever return to your preinjury level of activity
4. Do you restrict your activities because of your knee/s
5. What do you currently do for exercise? (IKDC grading)
6. Any further knee injuries or surgery?

# Study Group

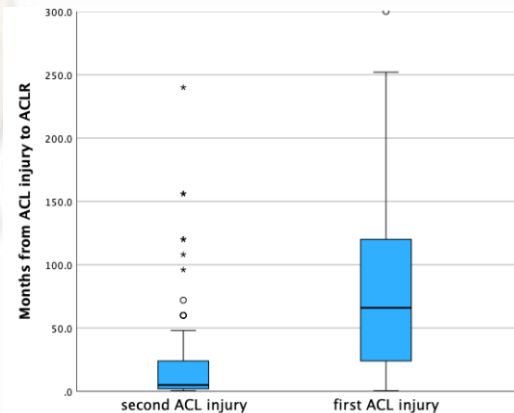
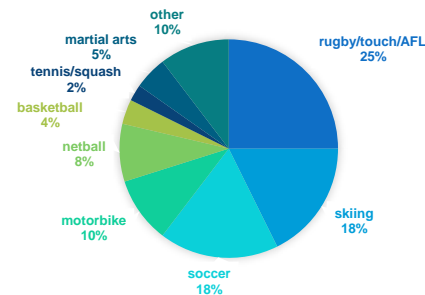
Simultaneous bilateral ACLR represent 1.7% of total ACLR



- Reviewed at mean 19 yrs from surgery (range 2-31 years)
- 61% male

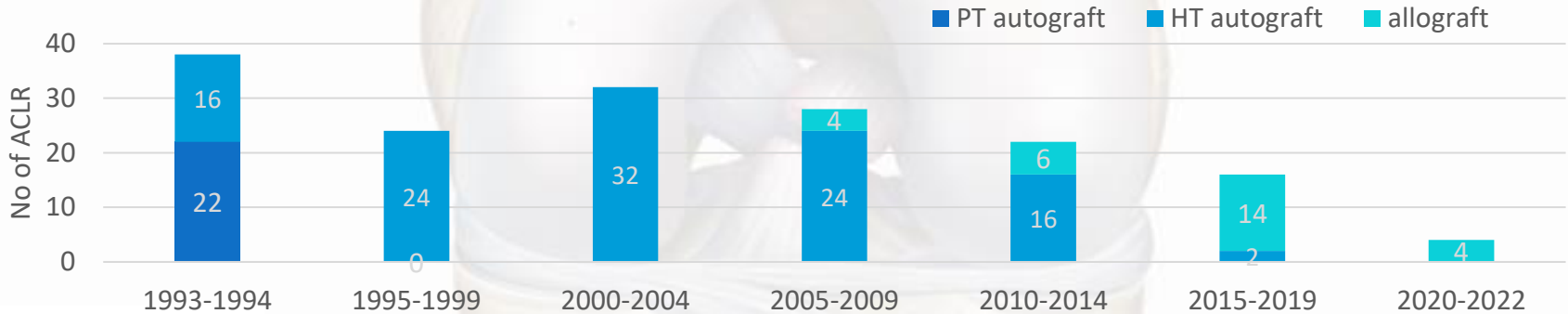
# Bilateral ACL Injury

- 76 patients (90%) sustained the ACL tears as 2 separate injuries
- 8 patients (10%) sustained them both during a single episode
  - skiing accounted for 6, with motorbike and soccer accounting for one each.
- The mean time between the 2 injuries was 58 months (SD 70)
- Most patients presented with one acute ACL rupture and one chronic rupture, the median time from injury to surgery was 66 months from the 1st ACL injury & 5 months for the second injury



# Operative Technique

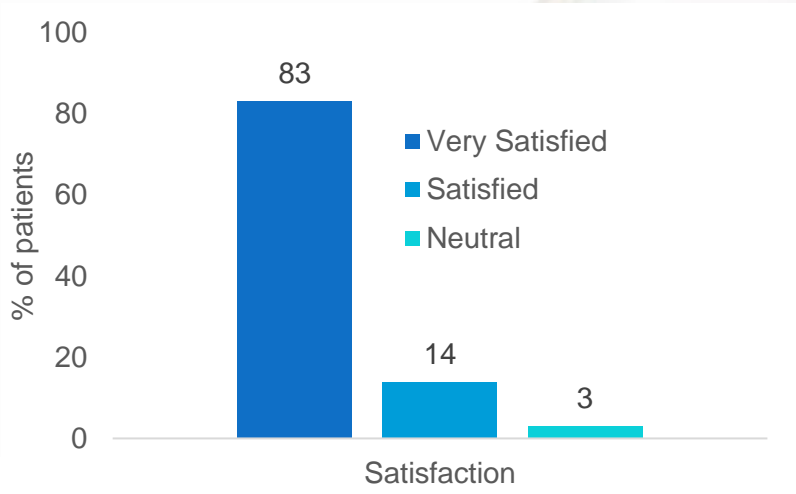
- Choice of graft was determined by surgeon (and patient) and trends changed over time
- Aperture fixation with interference screw for both femoral and tibial tunnels.
- 1993 All patellar tendon autograft (PT) = Overnight stay
- 1994-1999 70% hamstring tendon autograft (HT) = Overnight stay
- Post 2000 Almost all = Day Surgery (Pre 2020 = No Adductor Canal Blocks)



# Satisfaction with Surgery

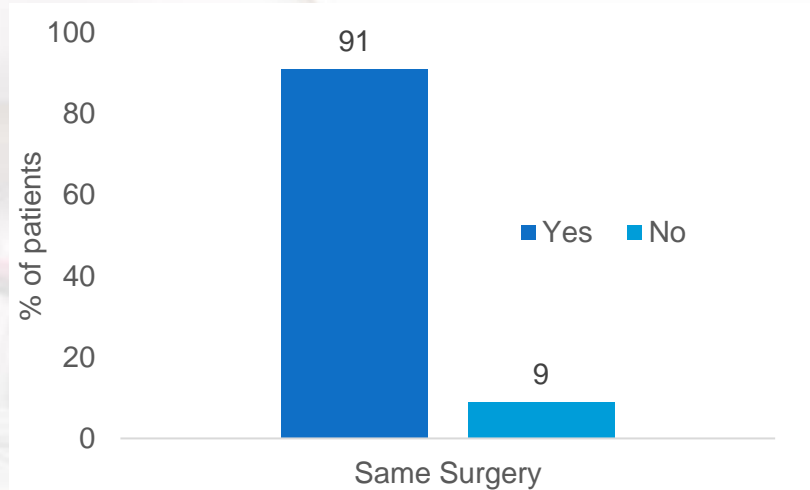
## Satisfaction

- 97% satisfied or very satisfied



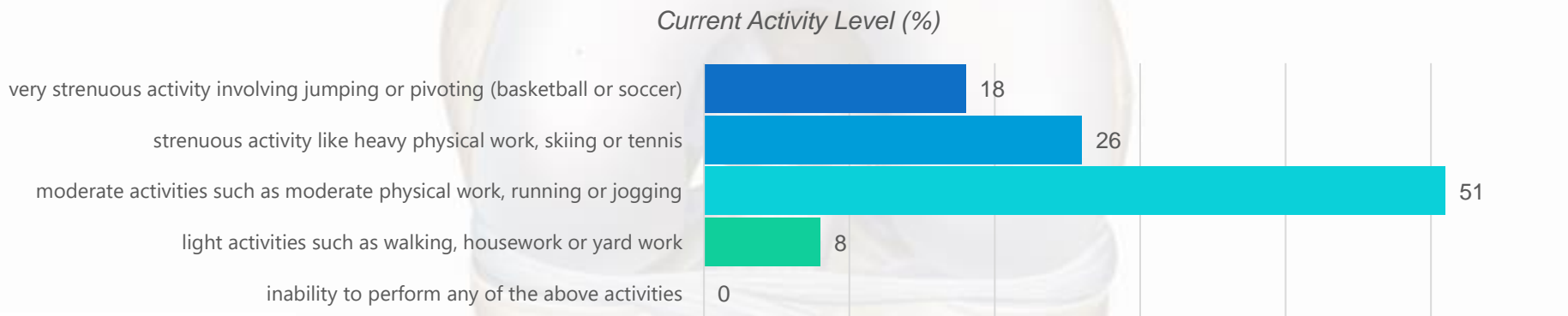
## Same Surgery Again

- 91% same surgery again



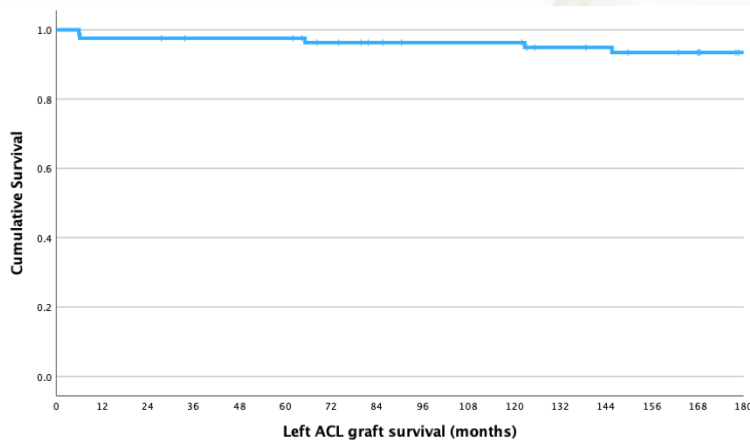
# Return to Sport

- 71% returned to their pre-injury activity at some point
  - Of the 29% patients who did not to return to their pre-injury level of activity, 89% attributed it to their knee/s.
- 85% denied having any limitations in their activity to their current knee status

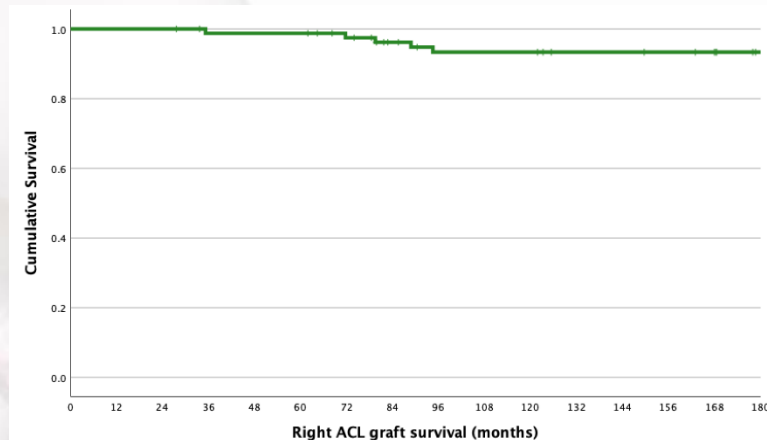


# Repeat ACL injury

## Left Knee



## Right Knee



7% of knees sustained an ACL graft rupture at a mean of 75 months  
10 year survival 95% left knee and 93% right knee

# Conclusions

- Relatively rare procedure (1.7%) of all our ACLR
- Largest case series of simultaneous bilateral ACL RC
- Feasible and successful treatment option with very high level of patient satisfaction & high level of return to sport
- 1 in 10 knees have further surgery over 19 years

**Simultaneous bilateral ACLR appears a viable option to improve operative efficiency, reduce costs and potentially halve the minimum recommended period of rehabilitation for a safe return to activities**

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