Report from the Swedish National ACL Register

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Eesti Artroskoopia Selts

My disclosure is:

Lecturing for Linvatec Sweden

Demographics

- 90% coverage of all ACL recons in Sweden

- >35, 000 patients in the register

- Until now, almost 25, 000 unique recons analysed

- 22, 059 primary and 1, 431 revision, 530 bilateral ACL-reconstructions with pre- and per-operative demographic data
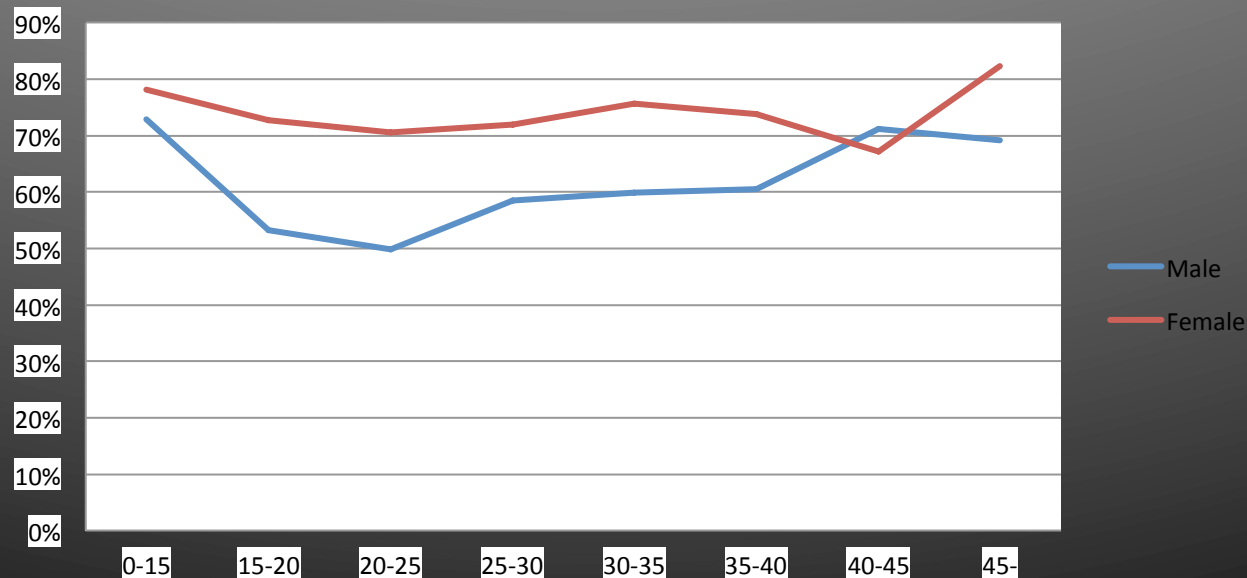
Demographics

KOOS and EQ5D evaluations available:

- ~70% PROM, pre-op
- ~ 60% PROM, 1 year
- ~ 50% PROM, 2 years
- ~ 40% PROM, 5 years

- Smoking information:
- 9, 332 patients (579 smokers)

Demographics

- Females better responders compared to men
- Young and old patients better responders
- Males 20-25 years old, worst responders

Response rate KOOS 2010-2013, 1 Year follow-up

Gender and Age

Primary reconstructions:
- Males 58%
- Females 42%

Revision reconstructions:
- Males 56%
- Females 44%

- Mean age primary:
26 years females; 28 years males

- Mean age revisions:
26 years females; 29 years males

Cause of Injury

Soccer:
49% males; 36% females

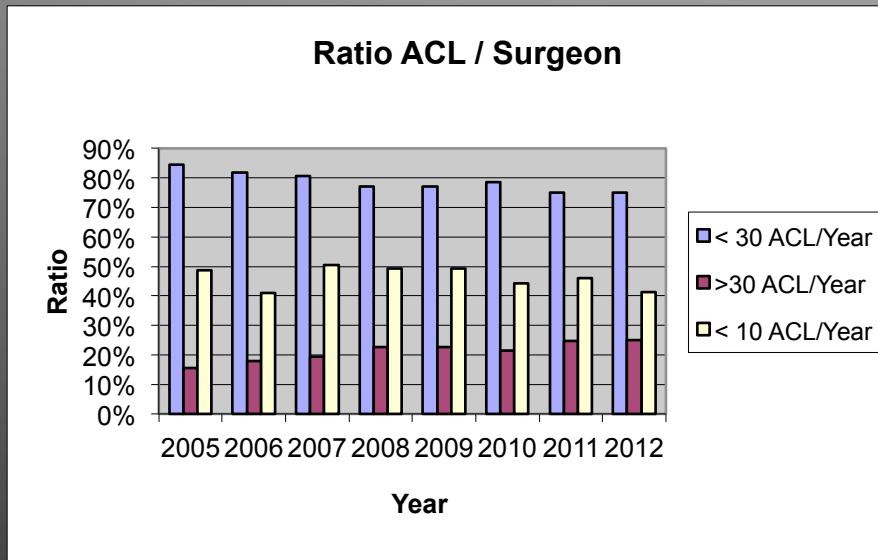Alpine skiing:
10% males; 18% females

Floor ball:
10% males; 9% females

Handball
3% males; 9% females

Number of Procedures per Surgeon

Ratio ACL / Surgeon

| # ACL	2010	2011	2012
0-10	78	78	66
11-20	28	33	21
21-30	16	16	33
31-40	16	22	18
41-50	11	6	12
51-	9	14	10
Total	167	169	160

41% of surgeons performed ≤10 reconstruction/year in 2012
48% of surgeons performed ≤10 reconstruction/year in 2014

Time to Reconstruction

Time from injury to reconstruction in months
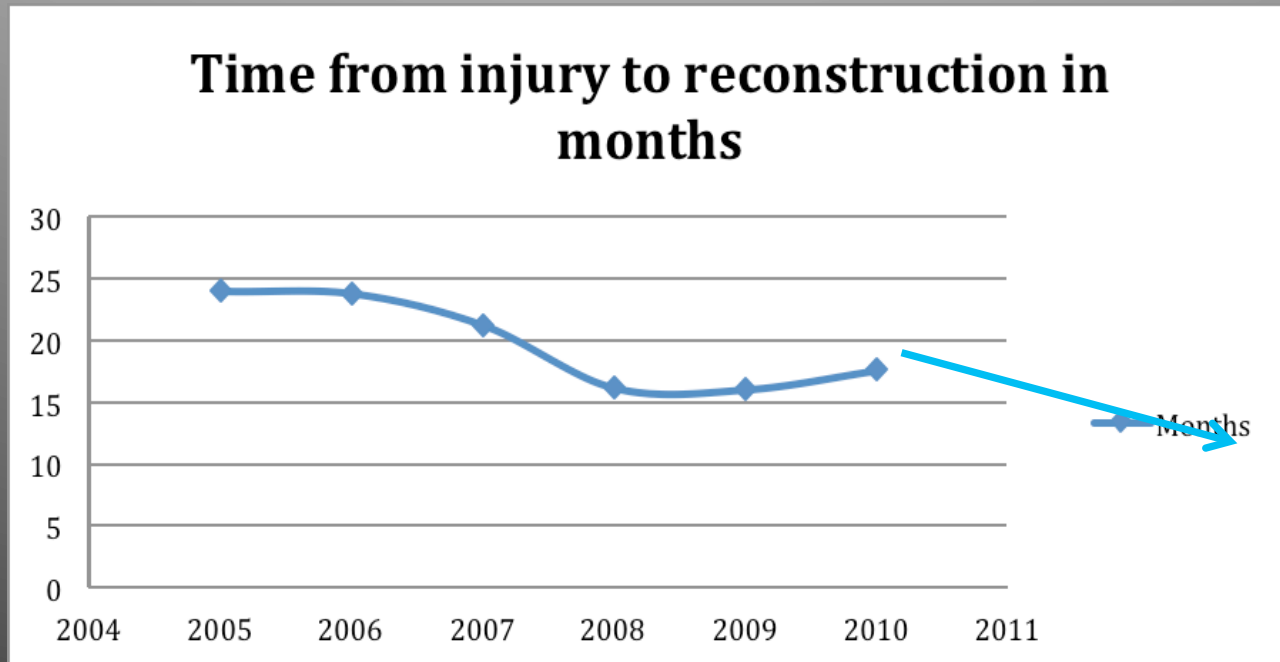
- 2010, time to reconstruction,18 months
- 2014, time to reconstruction,11 months
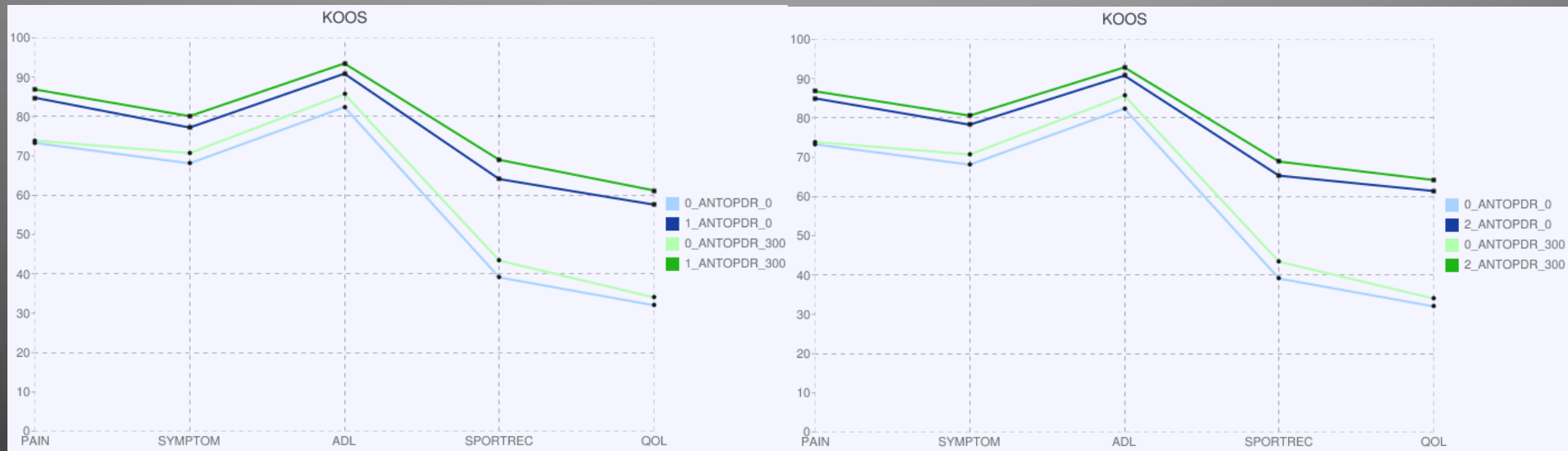
Type of Graft
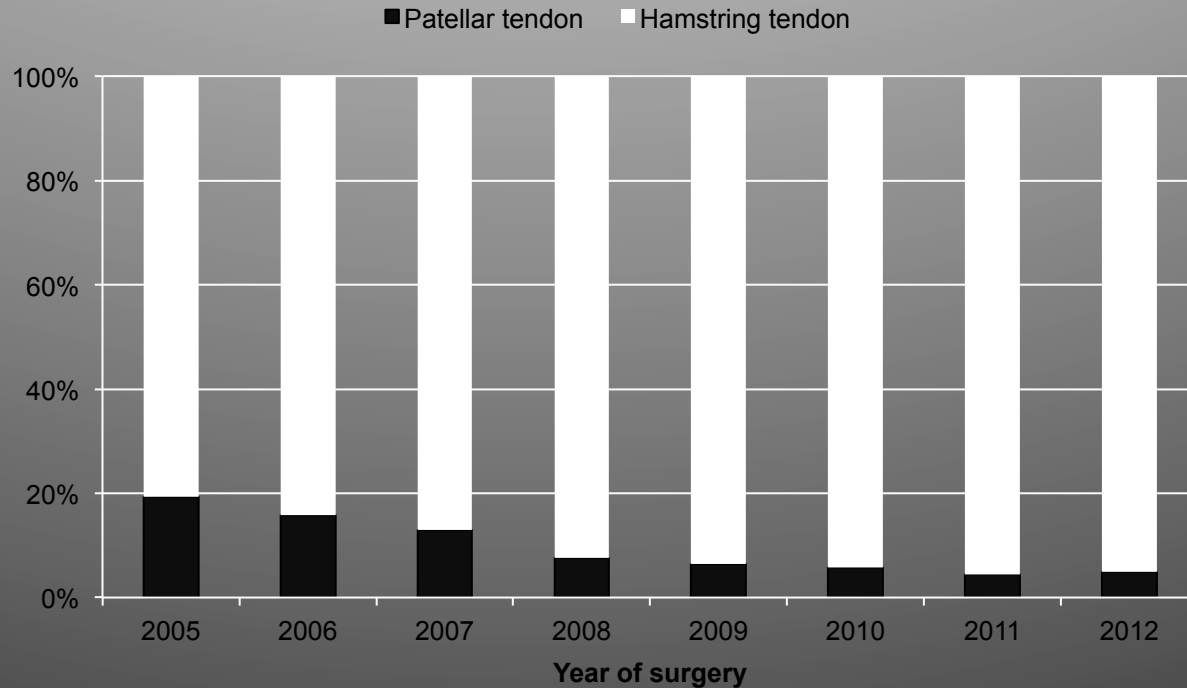
- 2005: 81% primary reconstructions, HT autograft
- 2014: >96%
(p<0.001)

1 y KOOS Clinics <100 vs >500 and1000 Procedures

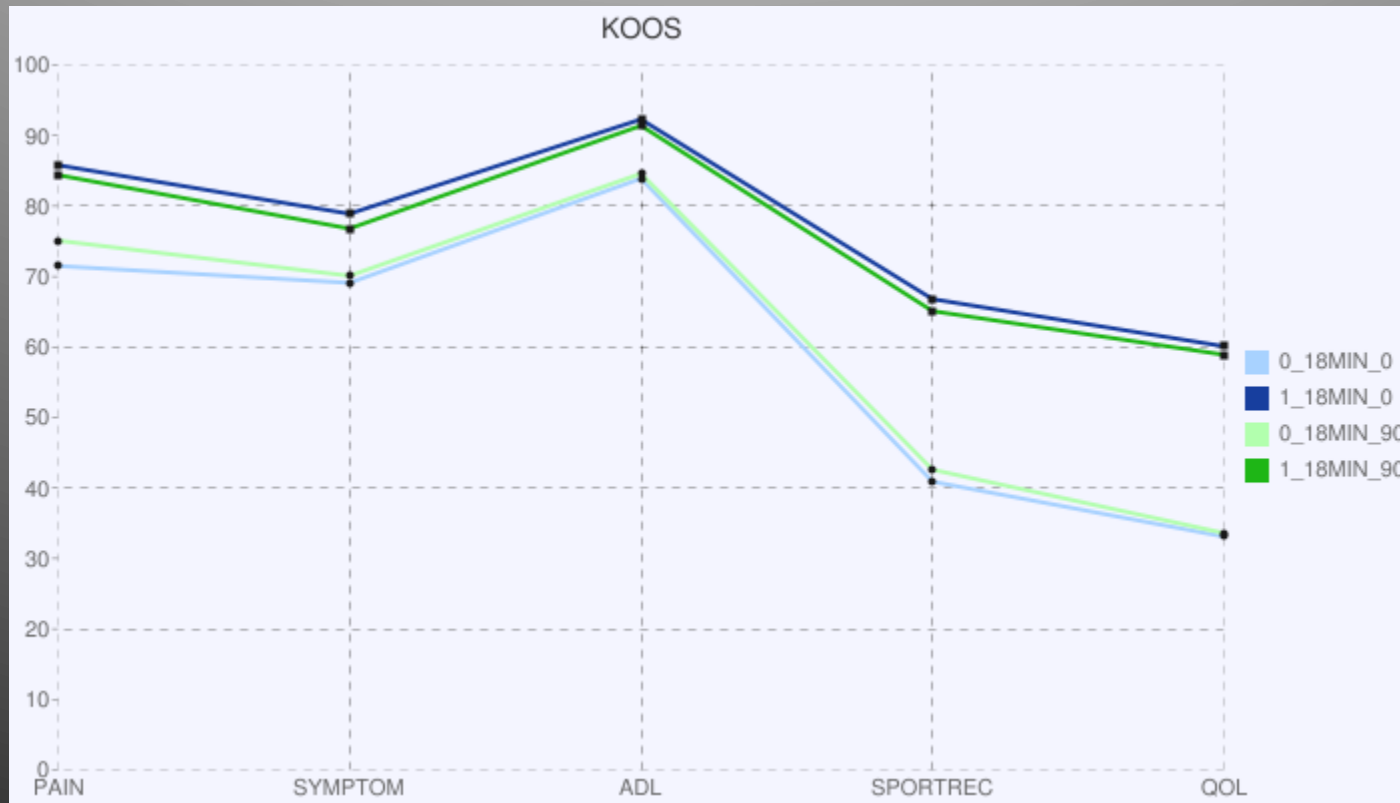
- Larger clinics operate better patients?

1 y and 2 y KOOS Surgeons <50 vs >300 Procedures
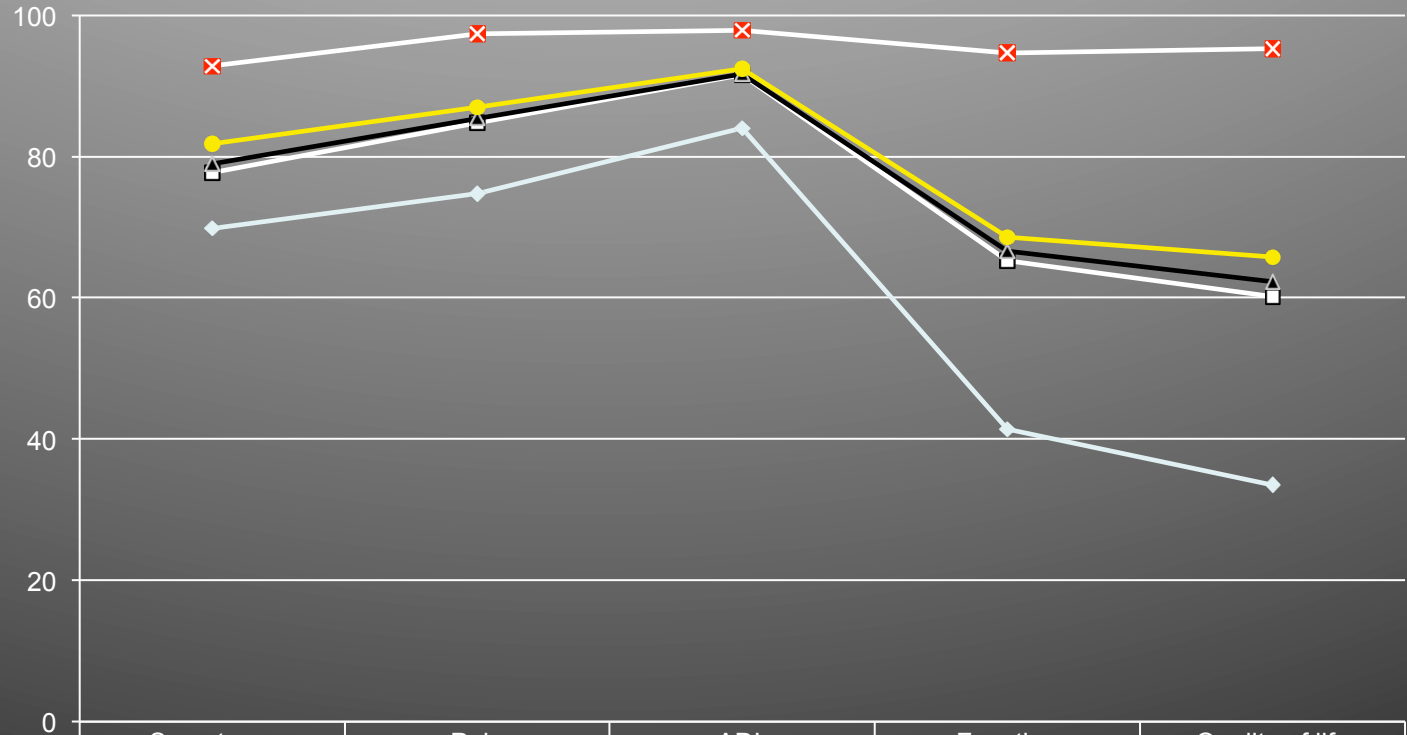

• Active surgeons operate better patients?

Knife-time <45 min vs >90 min

- Fast surgeons operate better patients?

KOOS Primary ACLs

KOOS for primary ACL reconstructions (2005-2012)

	Symptoms	Pain	ADL	Function	Quality of life
Preop (n=14479)	70	75	84	41	33
1 year (n=9821)	78	85	92	65	60
2 years (n=7652)	79	85	92	67	62
5 years (n=3461)	82	87	92	69	66
Reference	93	97	98	95	95

KOOS Revisions

KOOS for revision reconstructions (2005-2012)

	Symptoms	Pain	ADL	Sports/rec	Quality of life
Preop (n=874)	70	75	83	43	33
1 year (n=559)	71	78	86	51	47
2 years (n=459)	73	79	87	52	48
5 years (n=177)	70	77	86	50	49
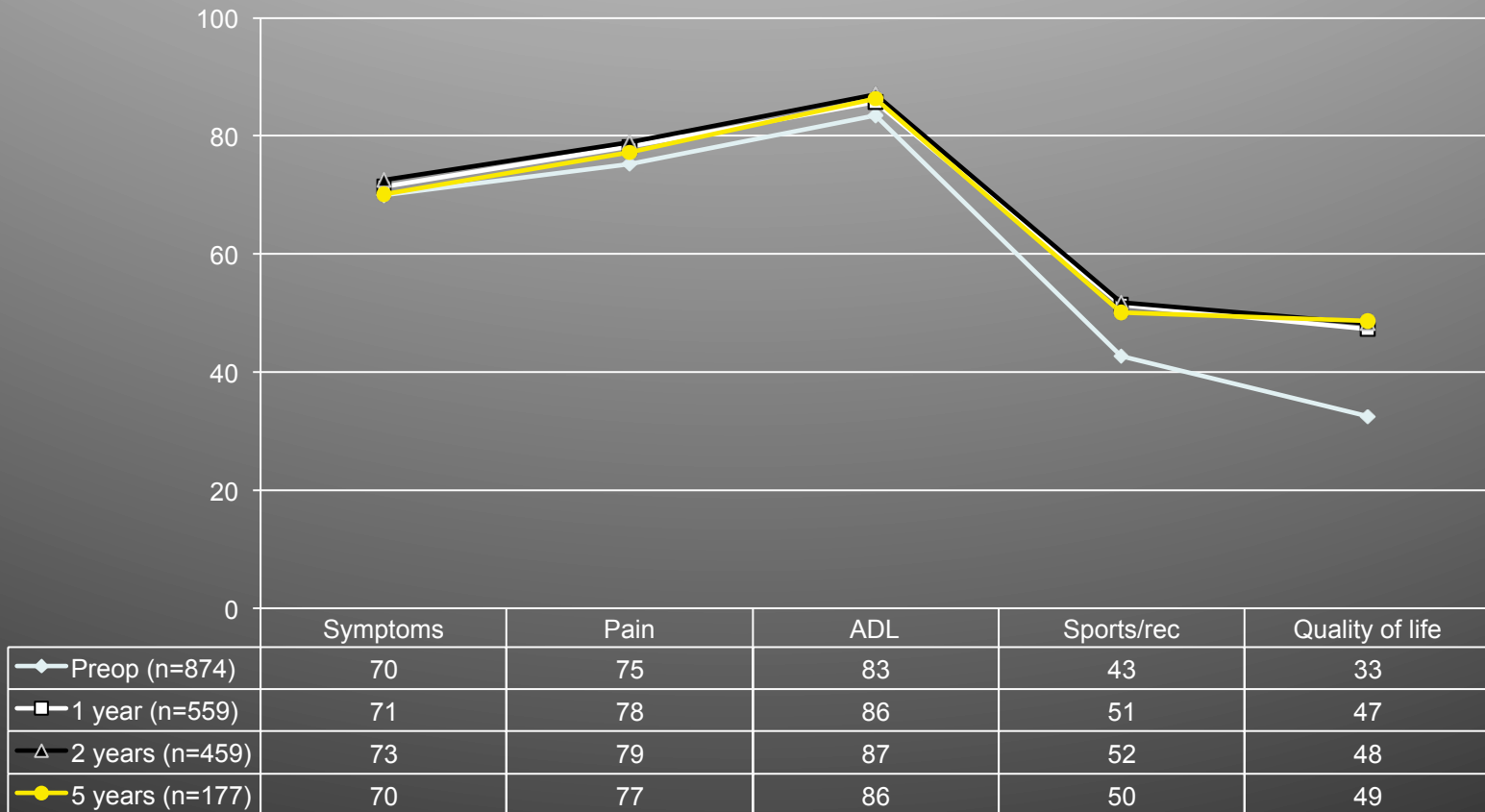
- Revisions worse in all KOOS subscales at all follow-up occasions
($p<0.001$)

KOOS Associated Injuries

KOOS; Ass. Meniscus/Cartilage injury

	Symptoms	Pain	ADL	Sport/Rec	QOL
Preop	72.3	77.2	86.6	45.9	35.7
Preop Ass.inj.	68.5	73.6	82.9	39.1	31.9
1 yr	78.3	85	92	65.7	60.4
1 yr Ass.inj.	77.4	84.2	90.9	63.5	58.6
5 yrs	82	87.3	92.9	70	65.3
5 yrs Ass.inj.	80.8	86	91.8	65.6	63.5
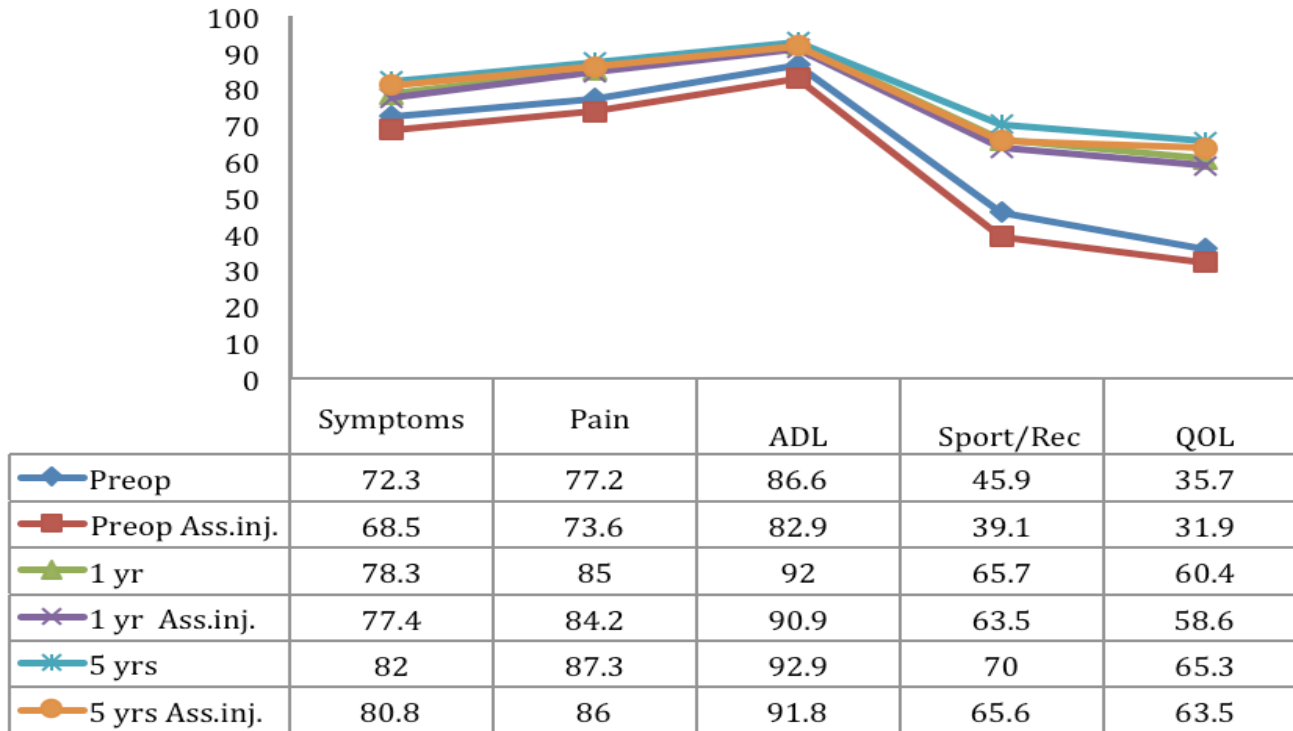
•54%, associated intra-articular injuries
All subscales worse pre-operatively, ($p<0.001$)

•At 5 years difference only for Sport/Rec, ($p<0.01$)

Smoking

KOOS; Smoker vs Non-smoker
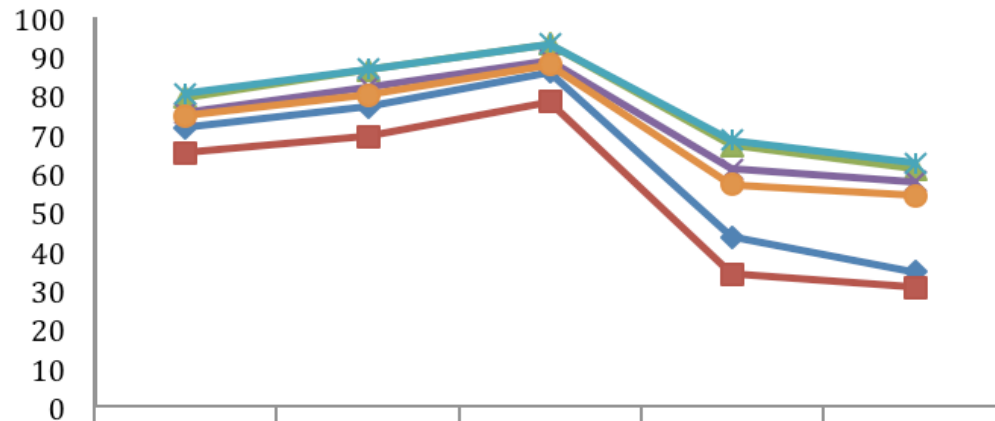
	Symptoms	Pain	ADL	Sport/Rec	QOL
Preop Non-smoker	71.7	77	86.1	43.6	34.6
Preop Smoker	65	69.1	78.2	34	30.6
1 yr Non-smoker	79.4	86.4	93.1	66.9	61
1 yr Smoker	75.4	82.1	89	60.9	57.8
2 yrs Non-smoker	80.4	86.6	93.1	68.3	62.5
2 yrs Smoker	74.5	80	87.7	56.9	53.9

- Smokers worse than non-smokers, all KOOS subscales

- Preoperatively (p<0.001)
- 2 years and 5 years (p<0.01)

Smoking EQ 5D

EQ5D index for primary ACL-reconstructions
smokers v non-smokers (2009-2012)
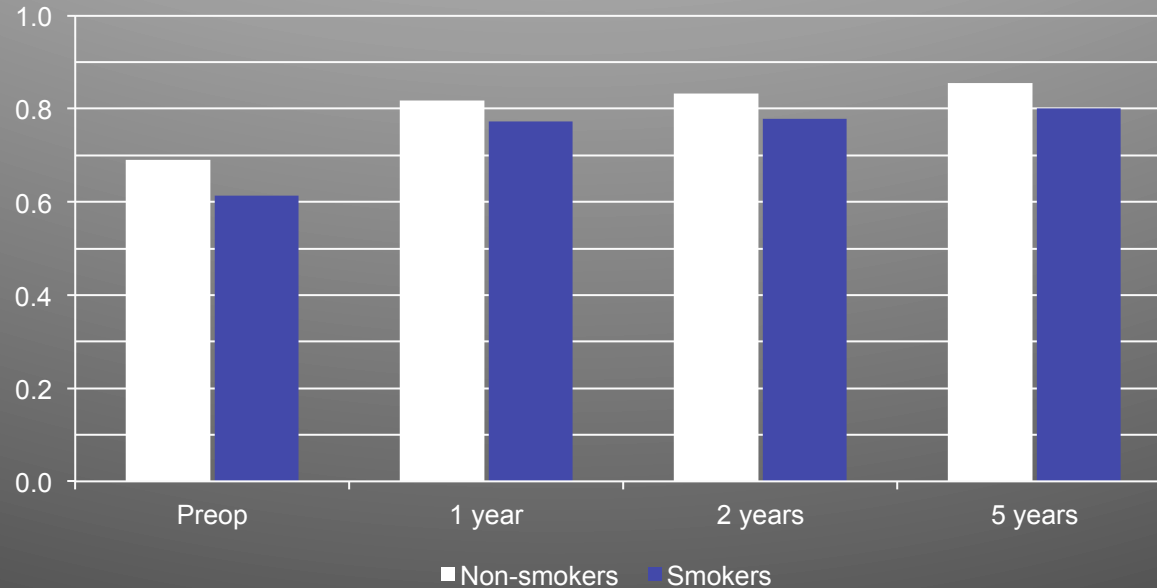
- •Smokers worse than non-smokers all follow-ups (p<0.023)

KOOS and EQ5D
Sex and Graft

Small significant differences in favor of males

Small significant differences in favor of HT autograft

Return to Play

- 54% of soccer players returned to play at same or higher level at 1 year

- If female, pain and cartilage injury 10% return

- If male, no pain, no cartilage injury 76.5% return

Revision within 3 Years

- Trans-fixation implant: 2.2%

- Cortical button: 2.3%

- Interference screw: 3.5%

Contra-Lateral/Revision Recons during 5 Years

7.0% of patients from 2005-2007 (contra 3.8%; revision 3.2%)

12.8%!!, <19 year old patients (contra 7.1%; revision 5.7%)

>30%! young female soccer players, including non-operatively treated patients

(p<0.001)

Deep Infections

Subgroup analyses from 2 large centers with meticulous registration of complications

41/7106 = 0.6% deep infections

Summary of Findings

- Primary ACL reconstruction significantly improves all KOOS subscales at 1,2 and 5 years

- Young patients are at major risk for reinjuring their ACL or injuring the contra-lateral ACL

- Revision ACL reconstructions do worse than primary reconstructions

- Smokers do worse than non-smokers

Thank You