

C.S. Leichtenberg<sup>1</sup>, J.J.L. Meesters<sup>1</sup>, H.M. Kroon<sup>2</sup>, J. Dekker<sup>3</sup>, R.G.H.H. Nelissen<sup>1</sup>, T.P.M. Vliet Vlieland<sup>1</sup>, M. van der Esch<sup>4</sup>, On behalf of the LOAS studygroup

1 LUMC, Dept of Orthopaedics, Leiden; 2 LUMC, Dept of Radiology, Leiden; 3 VU University Medical Center, Dept of Rehabilitation Medicine and Dept of Psychiatry, Amsterdam; 4 Amsterdam Rehabilitation Research Center/Reade, Amsterdam

## Introduction

After Total Knee Arthroplasty (TKA), 10-34% and 11-67% of the patients reported persisting pain or activity limitations, respectively. Self-reported knee instability was associated with pain and activity limitations prior to and 6-months after TKA. Self-reported knee instability is described in 60-80% of the patients with knee osteoarthritis and retained in 31%.

The aims of this study were

- (i) the prevalence of self-reported knee joint instability prior to and one year after TKA
- (ii) the associations between self-reported knee instability, pain, activity limitations and quality of life (QoL) prior to and one year after TKA,
- (iii) the course of self-reported knee instability over time
- (iv) the associations between retained knee joint instability, pain, activity limitations and QoL adjusted for baseline and covariates.

## Methods

- Multicenter cohort study
- Patients undergoing TKA, extracted from the LOAS.

### Assessments

- Preoperatively and 1-year after TKA.
- KOOS pain, activity limitations and QoL (0-100 with 100 representing the best outcome).
- Self-reported knee joint instability: the presence

or absence of the sensation of buckling, shifting or giving way of the knee in the previous 3 months.

- Covariates: age, sex, BMI and comorbidities.
- Analyses: Linear regression analyses for associations between self-reported knee instability, pain, activity limitations and QoL adjusted for covariates and baseline scores.

**Table 1. Differences in outcomes of patients with and with no self-reported knee joint instability**

	Knee-instability T=0 N=649 median(range)	Knee-stability T=0 N=259 median(range)	P-value	Knee-instability T=1 N=187 median(range)	Knee-stability T=1 N=721 median(range)	P-value
Pain	36 (0-91)	44 (0-100)	<0.001*	78 (0-100)	94 (17-100)	<0.001*
Activity limitations	43 (0-99)	50 (4-100)	<0.001*	77 (0-100)	93 (6-100)	<0.001*
QoL	31 (0-81)	31 (6-88)	0.989	44 (6-81)	58 (17-68)	<0.001*

## Results

In total 908 patients were included, of which 649 (71%) reported preoperative knee instability and 187 (21%) postoperative knee instability. Differences in outcomes of patients with and with no self-reported knee instability pre- and postoperatively are described in Table 1.

Of the patients with preoperative knee joint instability, retained 25% this sensation 1 year after TKA. Associations between self-reported knee instability, pain, activity limitations and quality of life are described in Table 2.

**Table 2. Associations between self-reported knee instability, pain, AL and QoL**

	Pain Beta (95% CI)	Activity Limitations Beta (95% CI)	QoL Beta (95% CI)
	T=0	T=0	T=0
Knee Joint Instability	-10 (-12 - -7)*	-8 (-10 - -5)*	-0.4 (-2 - 1)
Knee joint instability#	-7 (-11 - -3)*	-4 (-8 - -0.4)*	-
	T=1	T=1	T=1
Postoperative knee joint instability ¥	-15 (-19 - -12)*	-15 (-18 - -12)*	-11 (-13 - -9)*
Retained ¥	-15 (-19 - -11)*	-14 (-18 - -10)*	-10 (-13 - -8)

#adjusted for age, sex, BMI, comorbidities ¥None of the covariates influenced the associations in multivariate analyses

## Conclusion

In clinical care, knee joint instability is prevalent one year after TKA. Reported knee joint instability is associated with more pain, more activity limitations (pre- and postoperatively) and worse QoL postoperatively. Of the patients with preoperative knee joint instability, retained 25% this sensation. In patients with retained knee instability, worse pain, more activity limitations and worse QoL are present. Retained knee joint instability could be an alarm symptom for poor outcomes after TKA.