Changing amount of posterior tibial slope during unicompartmental knee arthroplasty does not affect short-term postoperative patient-reported outcome measurement

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Disclosure of conflict of interest

Name of first author: Tomita R

I have no conflict of interest
with regard to this presentation.

Posterior tibia slope (PTS) in UKA

Revision rates increase with postoperative PTS more than 8°

Hernigou P, et al. JBJS-A 2004

Reproducing the same PTS as before surgery leads to good clinical results

Franz A, et al. J Knee Surg 2019

The impact of PTS changes in UKA on clinical outcomes is unknown.

Purpose

To investigate the relationship between changing amount of PTS and post-op outcomes in UKA

Materials and Methods

Subjects:86 knees of 72 patients from 2012 and 2022
Minimal 1 year follow-up (F/U)

Age: 75.2 ± 5.9（62 - 91）y.o.

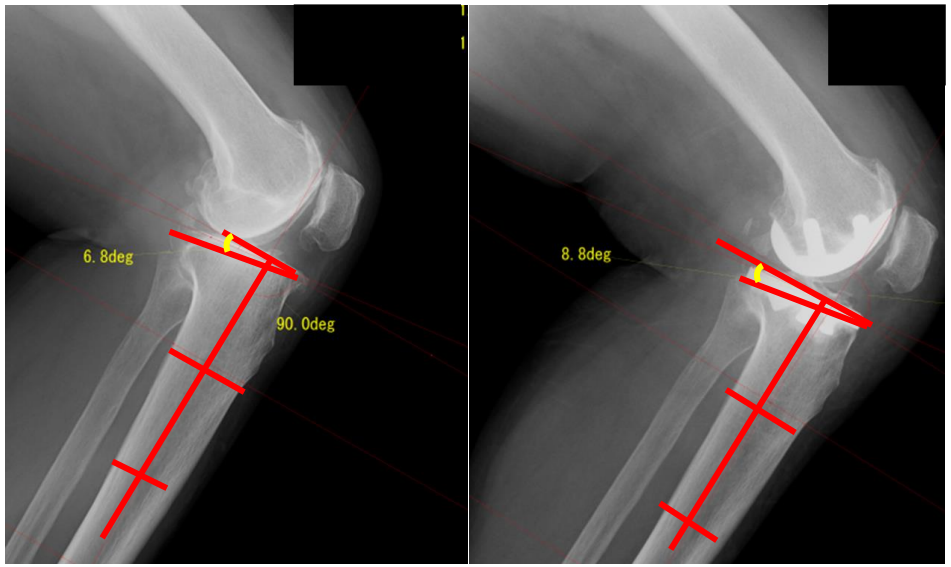
Sex: Male: 26 knees, Female: 60 knees

F/U: 45.7 ± 25.5（15 - 126）months

Implant: ZIMMER BIOMET Persona PARTIAL KNEE with fixed bearing

Cut plan: Reproducing original PTS according to intraoperative findings

Survey items



Changing amount of PTS

- Knee symptoms
  - KOOS at final F/U
- Range of motion (ROM)
  - Before surgery
  - Final F/U

Decreasing group (D Group): less than -2.5°

Unchanging group (U Group): -2.5° - 2.4°

Increasing group (I Group): more than 2.5°

Dean RS, et al. Arthroscopy 2021

Statistical analysis

1. **Correlation between pre- and post-PTS**

Spearman's rank correlation coefficient

2. **Correlation between pre-PTS and PTS changes**

Spearman’s rank correlation coefficient

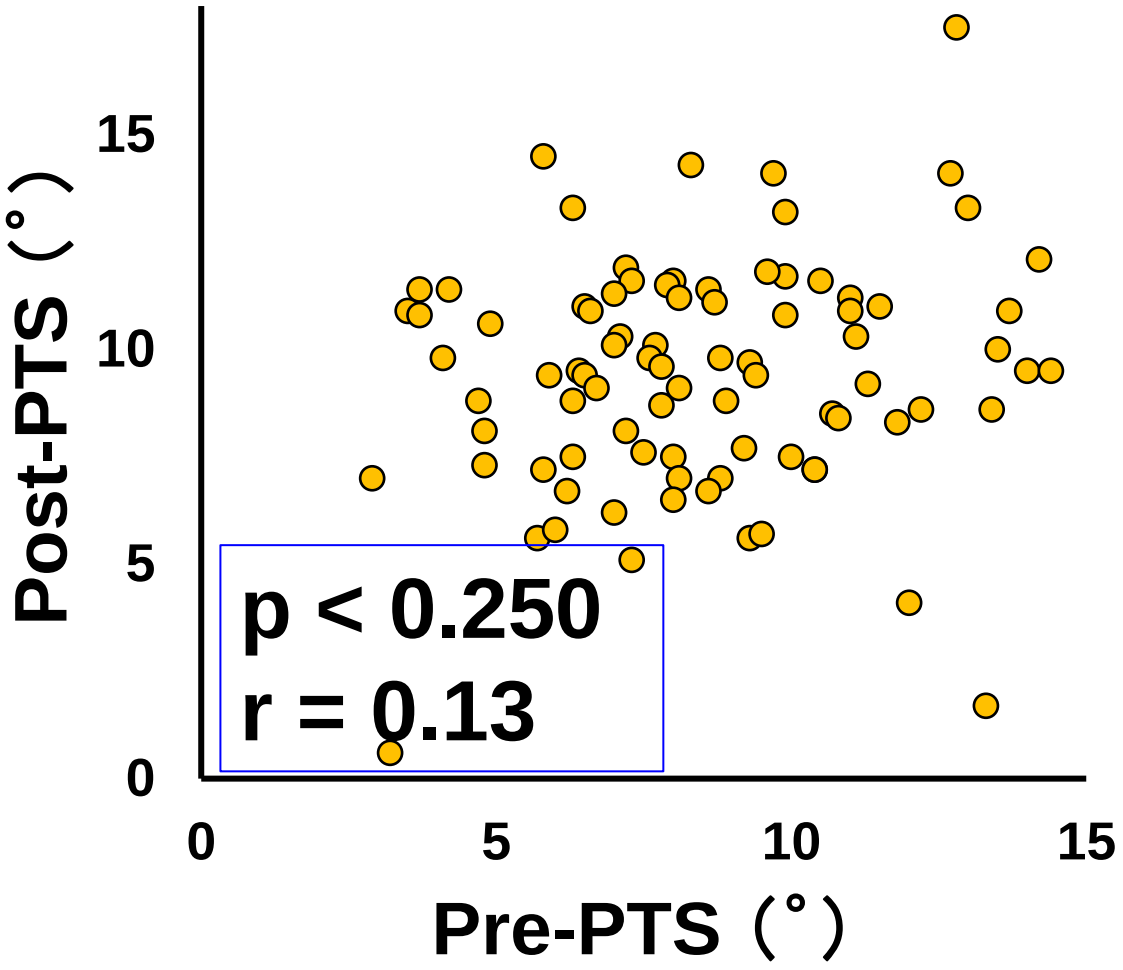
3. **Comparison of demographic data**

ANOVA, Kruskal-Wallis test, Chi-square test

4. **Comparison of postoperative KOOS between groups**

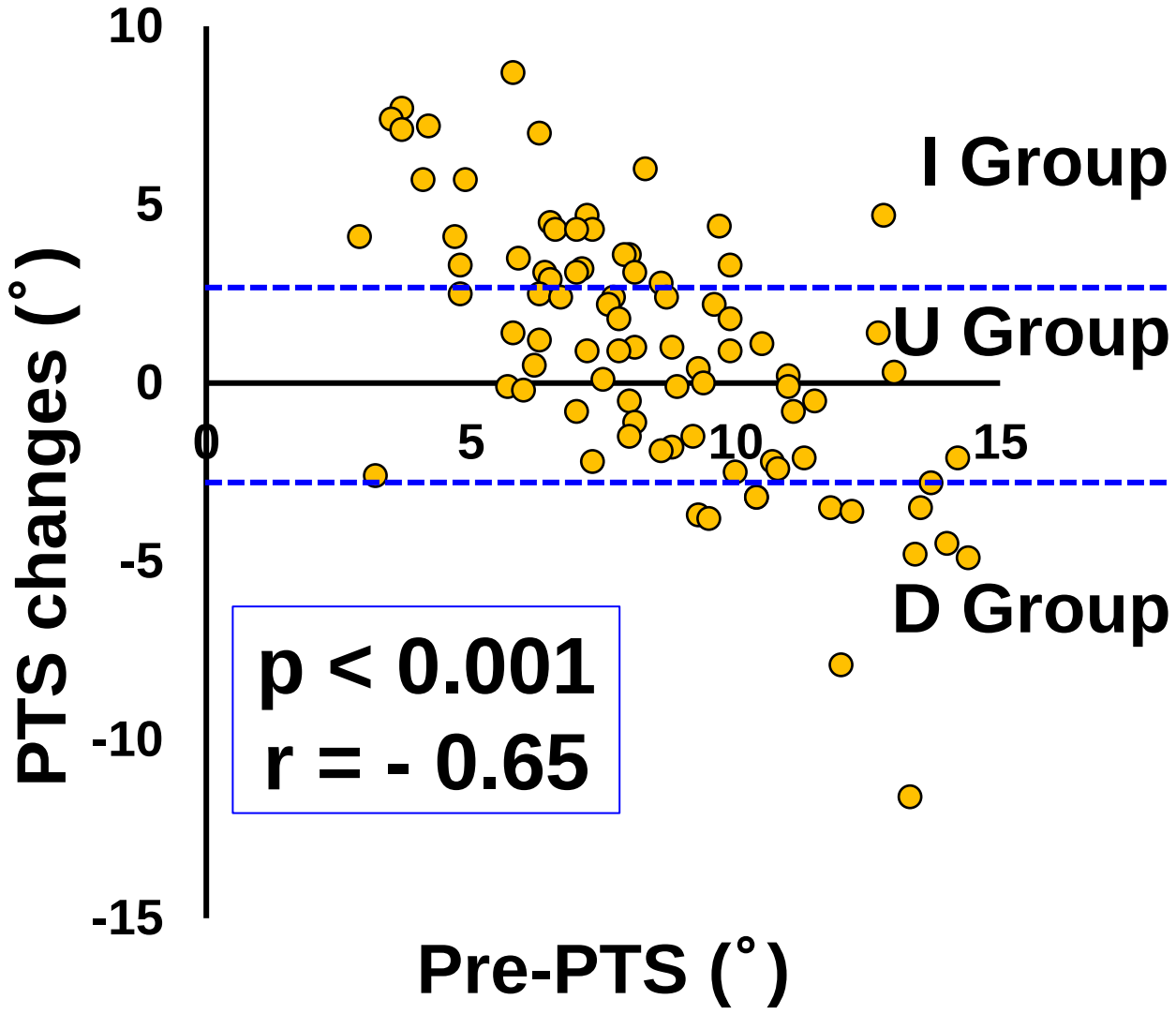
ANOVA, Kruskal-Wallis test

Correlation between pre- and post-PTS



Spearman rank correlation coefficient

Correlation between pre-PTS and PTS changes



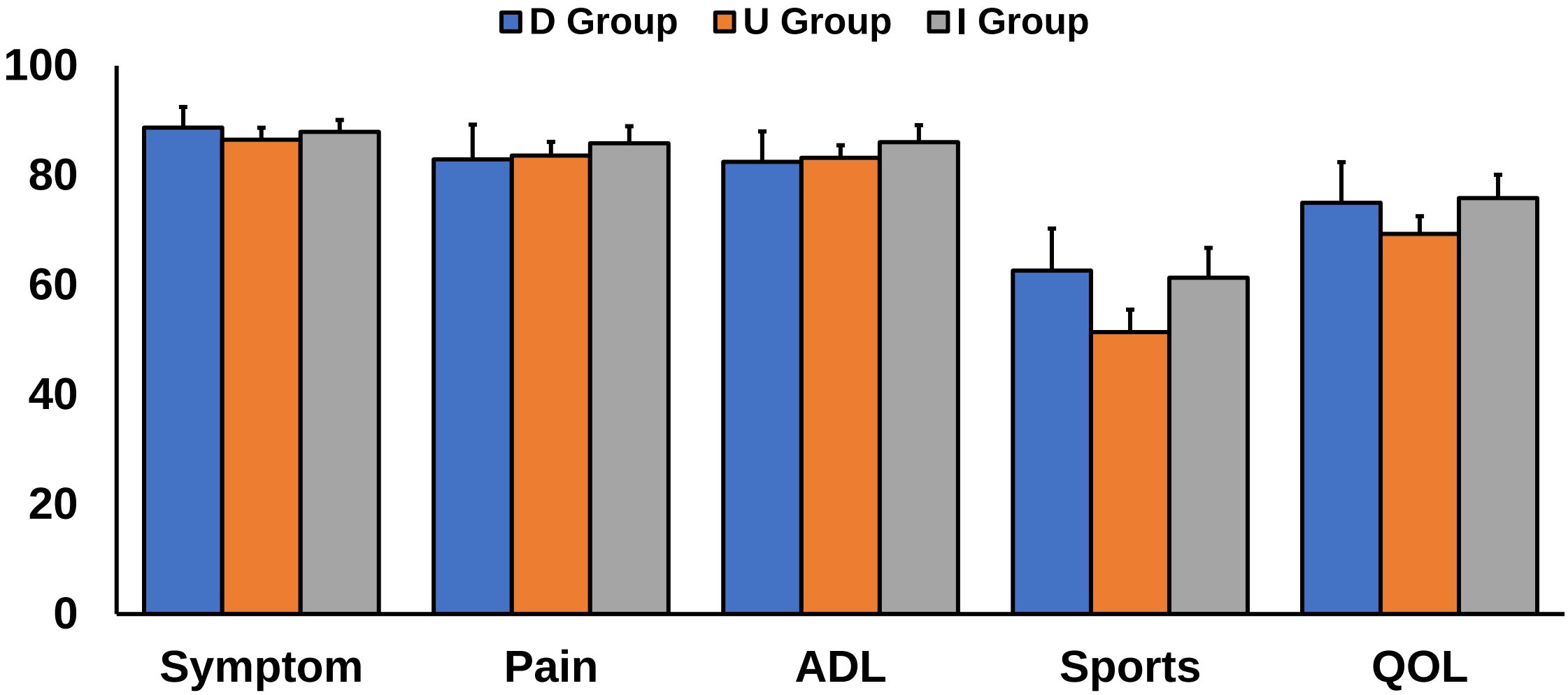
Spearman rank correlation coefficient

Demographic data

	D Group	U Group	I Group	P-value
Patient number	14	43	29	-
Age（y.o.）	76.4 ± 5.4	75.6 ± 6.1	74.1 ± 6.0	0.402
Female（%）	14.3	39.5	24.1	0.138
BMI（kg/m²）	26.1 ± 3.3	25.2 ± 3.3	26.9 ± 2.7	0.085
Follow-up (Mon.)	64.1 ± 33.4	40.0 ± 20.3	74.1 ± 6.0	＜0.001
Pre-PTS（°）	11.5 ± 2.9	8.8 ± 2.1	6.5 ± 2.9	＜0.001
Pre-extension（°）	-4.5 ± 3.7	-3.8 ± 3.6	-3.2 ± 3.6	0.491
Pre-flexion（°）	135.4 ± 4.6	134.5 ± 7.5	135.4 ± 6.6	0.909
Post-extension（°）	-0.93 ± 1.9	-0.84 ± 1.8	-0.97 ± 2.4	0.968
Post-flexion（°）	135.4 ± 8.8	132.7 ± 7.7	134.4 ± 6.2	0.214

ANOVA, Kruskal-Wallis test, Chi-square test

Postoperative KOOS



No significant differences between the groups

ANOVA, Kruskal-Wallis test, Chi-square test

PTS changes in UKA

This study

correlation between pre-PTS and PTS changes

Experienced surgeons can place implants with the same precision as with robot assistance.

Bush AN, et al. JBJS 2019

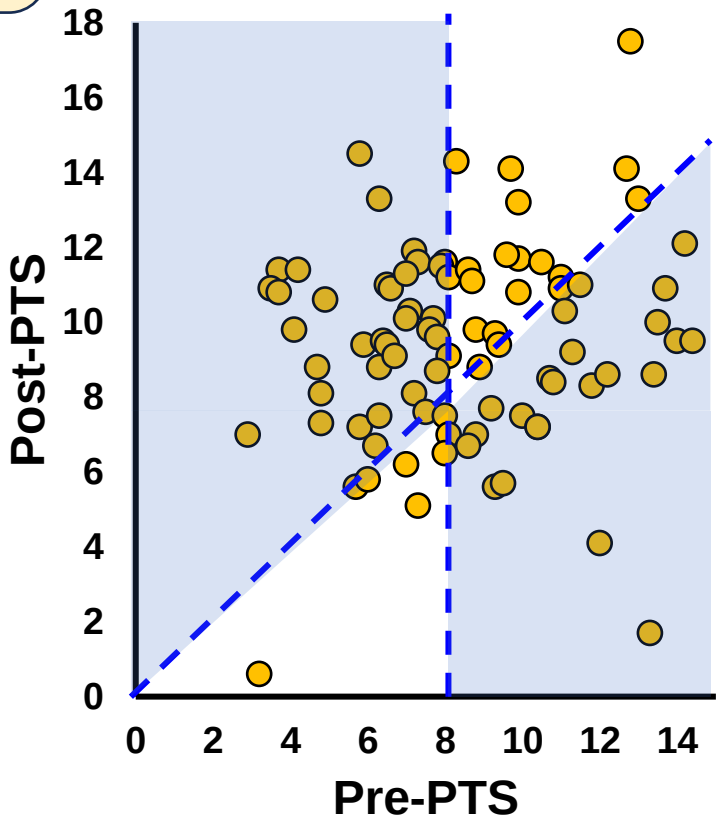
Good clinical results with PTS less than 8°

Plancher KD, et al. J Arthroplasty 2021

UKA in our hospital

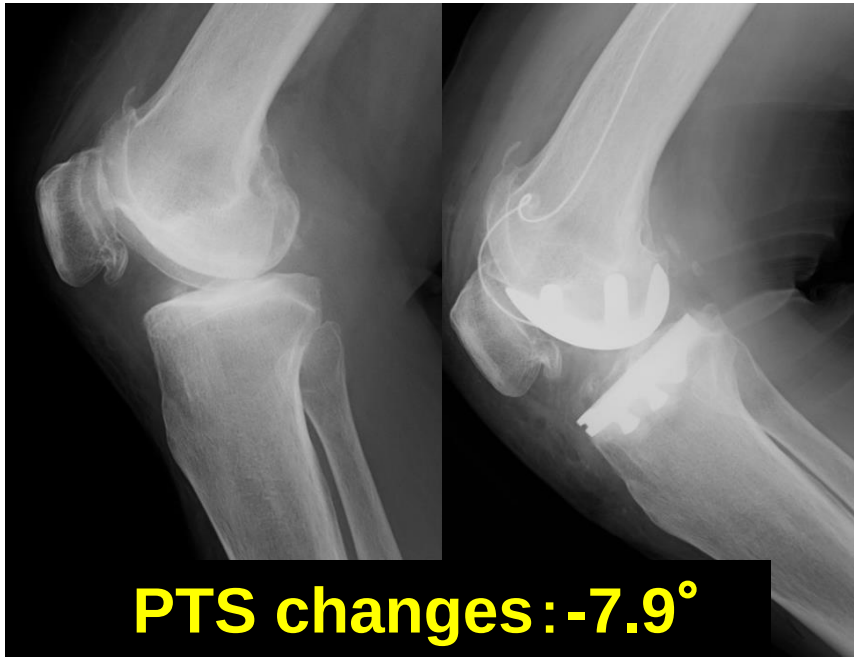
Reproducing original PTS consciously converges post-PTS around 8°

Pre- and post-PTS



Average of post-PTS
9.4±2.7°

Relationship between ROM, knee symptoms and PTS changes



ROM： 0/145°
KOOS: symptoms 86, ADL 78, pain 78, QOL 75, sports 55

This study

No significant differences in ROM and KOOS between the groups

Post-PTS does not affect knee symptoms and ROM

Gill JR, et al. Knee 2021

Pre- and post-PTS changes do not affect knee symptoms

Kurihara S, et al. Arthroplast Today 2022

Conclusion

Pre-PTS was negatively correlated with PTS changes

PTS changes did not affect postoperative ROM and knee symptoms

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