MEDIAL MENISCUS REPAIR ONLY PARTIALLY RESTORES IN-VIVO KNEE KINEMATICS

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DISCLOSURE

- S.Z.:
  SMITH & NEPHEW, DEPUY CONSULTANT
  MEDACTA, DEPUY RESEARCH SUPPORT

- ALL OTHER AUTHORS DECLARE NO C.O.I.

BACKGROUND

Kinematic Alterations After Anterior Cruciate Ligament Reconstruction via Transtibial Techniques With Medial Meniscal Repair Versus Partial Medial Meniscectomy

Ming Wang,*† PhD, Zefeng Lin,‡§ PhD, Wanshun Wang,‡§ MD, Lingling Chen,‡§ MD, Hong Xia,‡§ PhD, Yu Zhang,*‖ PhD, and Wenhan Huang,*‖ PhD
Investigation performed at General Hospital of Southern Theater Command of PLA, Guangzhou, China

WANG et al, AJSM 2021

ACL-R + MMR COMPARED TO ACL-R + PMM
ACLR + PMM → LARGER ADDUCTION AND EXTERNAL TIBIAL ROTATION AT 24 MONTHS FU DURING LEVEL WALKING

Anterior Cruciate Ligament Injuries Alter the Kinematics of Knees With or Without Meniscal Deficiency

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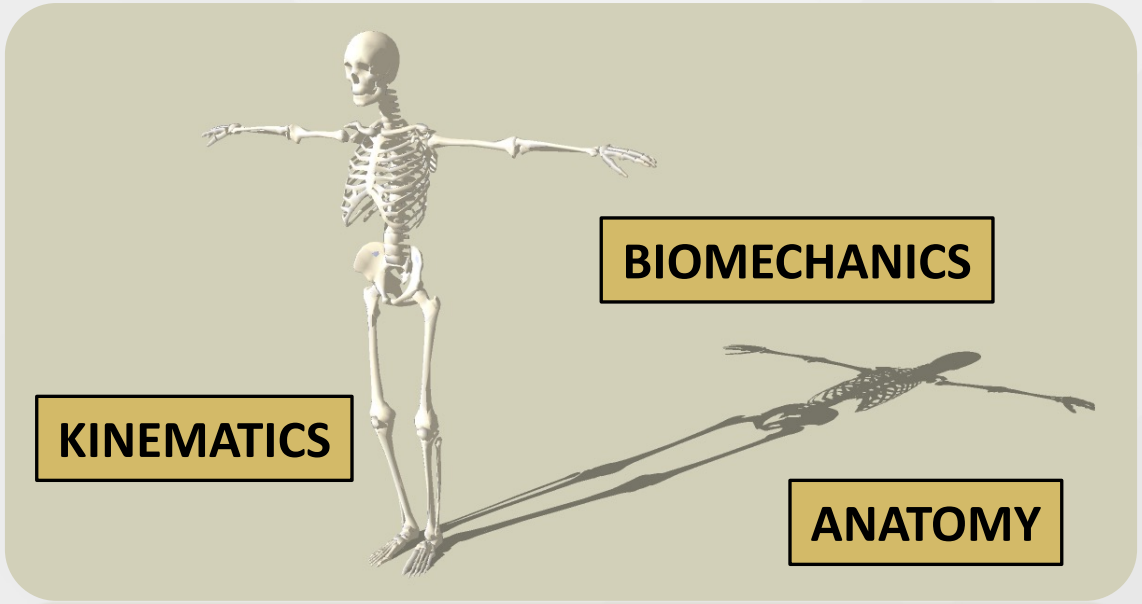
Investigation performed at Guangzhou General Hospital of Guangzhou Military Command, Guangzhou, China

ZHANG et al, AJSM 2016

ACL LESION + MENISCAL INJURIES INCREASED A/P AND MEDIAL/LATERAL FEMORAL SHIFT COMPARED TO ISOLATED ACL

PURPOSE

- TO COMPARE IN VIVO KNEE KINEMATICS OF ACL TEAR WITH COMBINED ACL AND MEDIAL MENISCUS TEARS;
- TO INVESTIGATE DIFFERENCES BETWEEN ISOLATED ACL RECONSTRUCTION AND ACL RECONSTRUCTION PLUS MEDIAL MENISCUS REPAIR.



METHODS

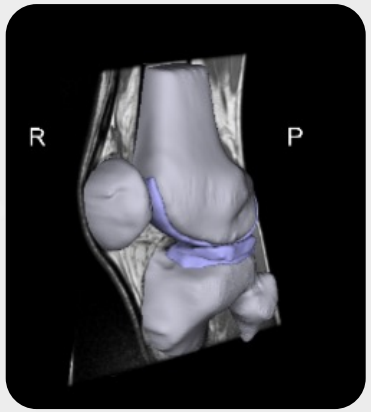
19 PATIENTS:

10 ACLR + INTACT MENISCUS (**IM group**)

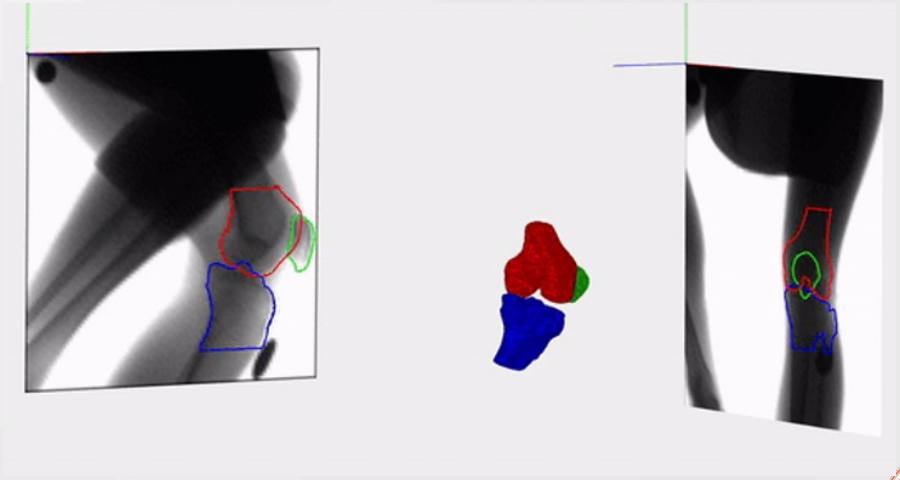
9 ACLR + MEDIAL MENISCUS ALL-INSIDE REPAIR (**MR group**)

SINGLE-LEG SQUAT → PRE-OP AND **18 MONTHS AFTER ACL-R**

MRI 3D BONE MODEL



DYNAMIC RSA



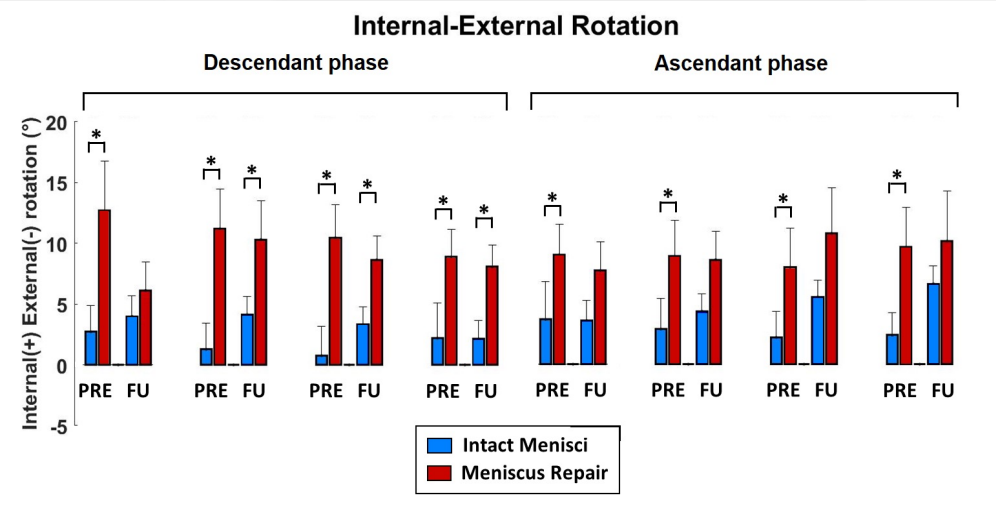
RESULTS

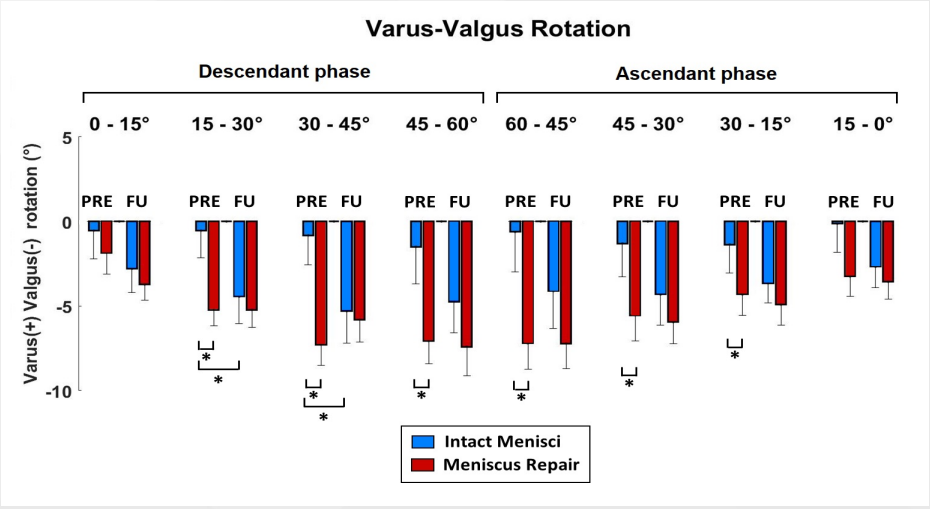
INTERNAL TIBIAL ROTATION:

- ↑ IN **MR-GROUP BEFORE AND AFTER ACL-R**

KNEE VALGUS:

- ↑ IN **MR-GROUP PRE-OP**
- **MR GROUP = IM** GROUP AT THE **18 MONTHS FU**





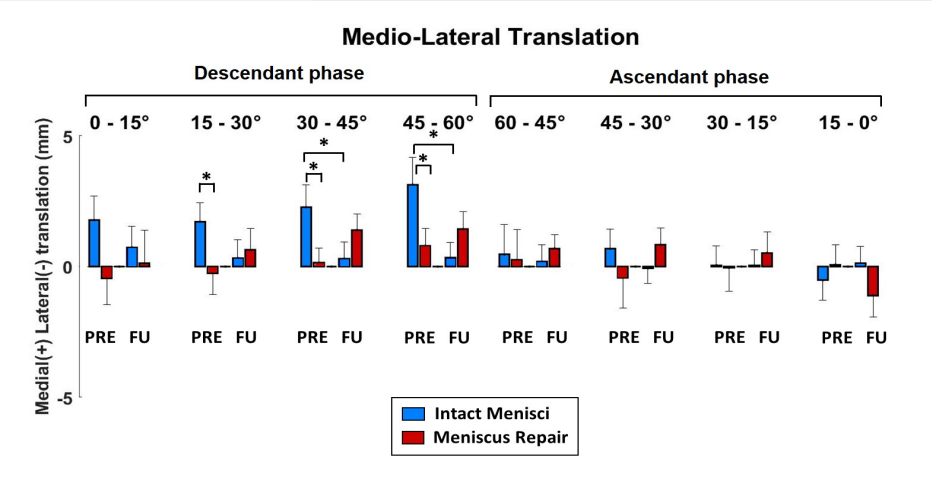
RESULTS

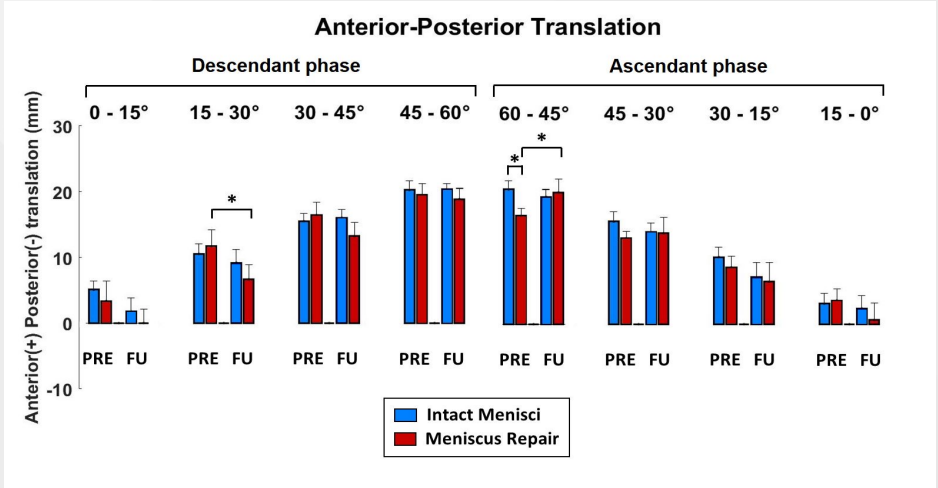
MEDIALIZATION OF THE PROXIMAL TIBIA:

- ↑ **IN MR-GROUP BEFORE AND AFTER ACL- R**
- **PERSISTENT IN BOTH** GROUPS FROM PRE-OP TO FINAL FU

ANTERIOR TIBIAL TRANSLATION:

- **IN MR-GROUP ↓ AT 15-30°** OF FLEXION AND ↑ **AT 60-45°** COMPARED TO PRE-OP
- **IN MR-GROUP ↓ AT 60-45°** COMPARED TO THE IM-GROUP AT PRE-OP





CONCLUSIONS

IN ACL DEFICIENT KNEES:

MEDIAL MENISCUS TEAR → HIGHER VALGUS ROTATION, TIBIAL INTERNAL ROTATION, AND LATERAL TIBIAL TRANSLATION DURING SINGLE LEG SQUAT

IN ACL RECONSTRUCTED KNEES:

MEDIAL MENISCUS REPAIR → HIGHER TIBIAL INTERNAL ROTATION DURING SINGLE LEG SQUAT

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thank you!

Dr. Alberto Grassi