



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11

Weight Matters: The Causal Role Of Birth And Childhood Body Size In Recurrent Patellar Dislocation

A Mendelian Randomization Study

Chao Zhang,MM. / Qian Wu,MM.

Baoji Hospital of Traditional Chinese
Medicine,Shaanxi, China



Faculty Disclosure Information

- *Zhang Chao and Wu Qian: Nothing to disclose.*



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11

Research Problem

Key Factors of Patellar Instability

Lateral Displacement Tendency

(Modified Insall-Salvati Ratio >1.3)

Trochlear Dysplasia

(Dejour Classification Type B/C)

MPFL Insufficiency

(Grade III Medial Ligament Laxity)

Dimension

Scientific Question

👶 Birth Weight

Birth weight → Lifetime dislocation risk trajectory

📏 Childhood BMI

BMI-sex interaction analysis in patellar stability

⚖️ Prenatal Intervention

Critical window for nutritional intervention efficacy



ISAKOS
CONGRESS
2025



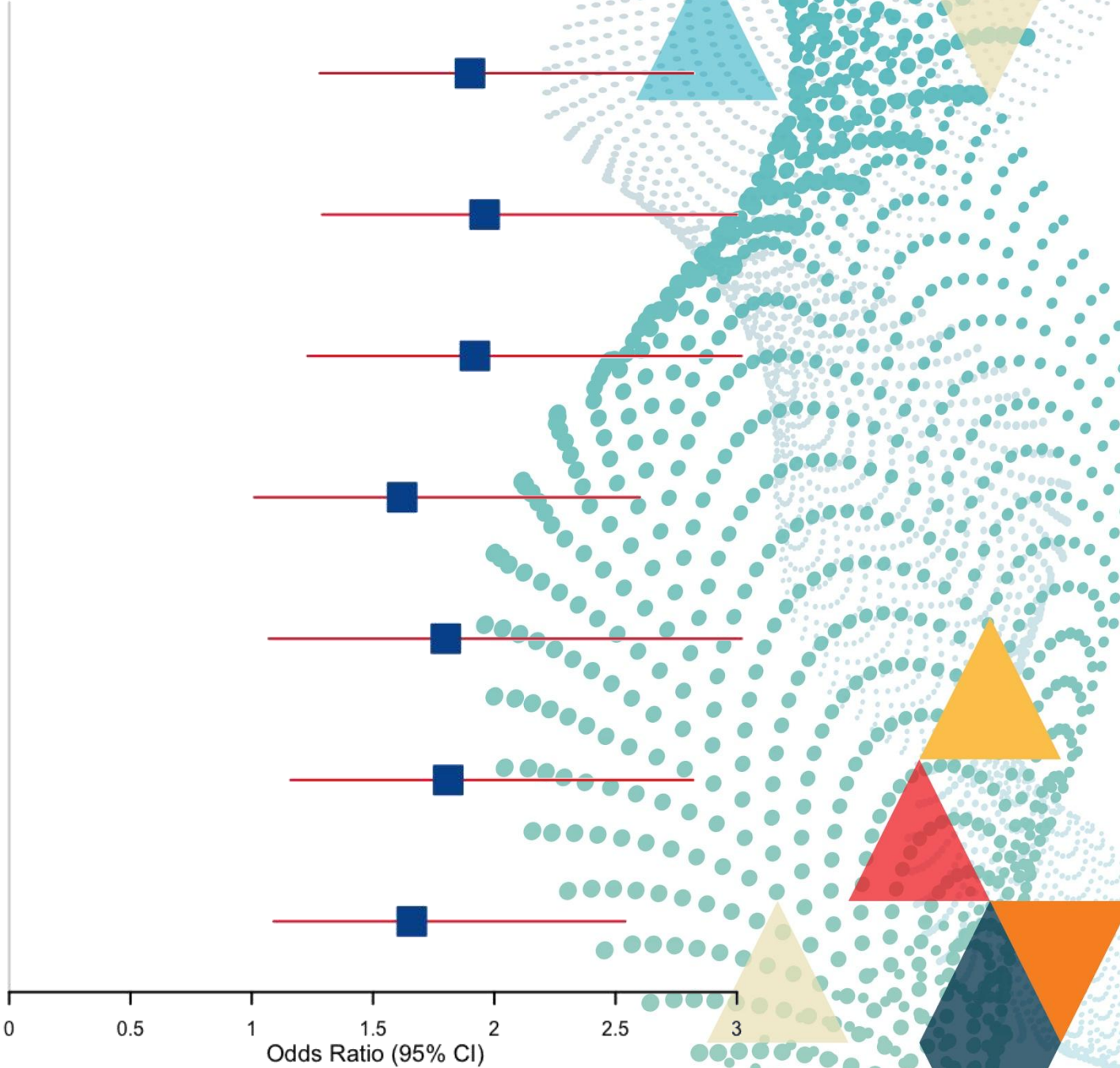
MUNICH
GERMANY
June 8-11

Mendelian Randomization Design



Multidimensional Exposure Analysis

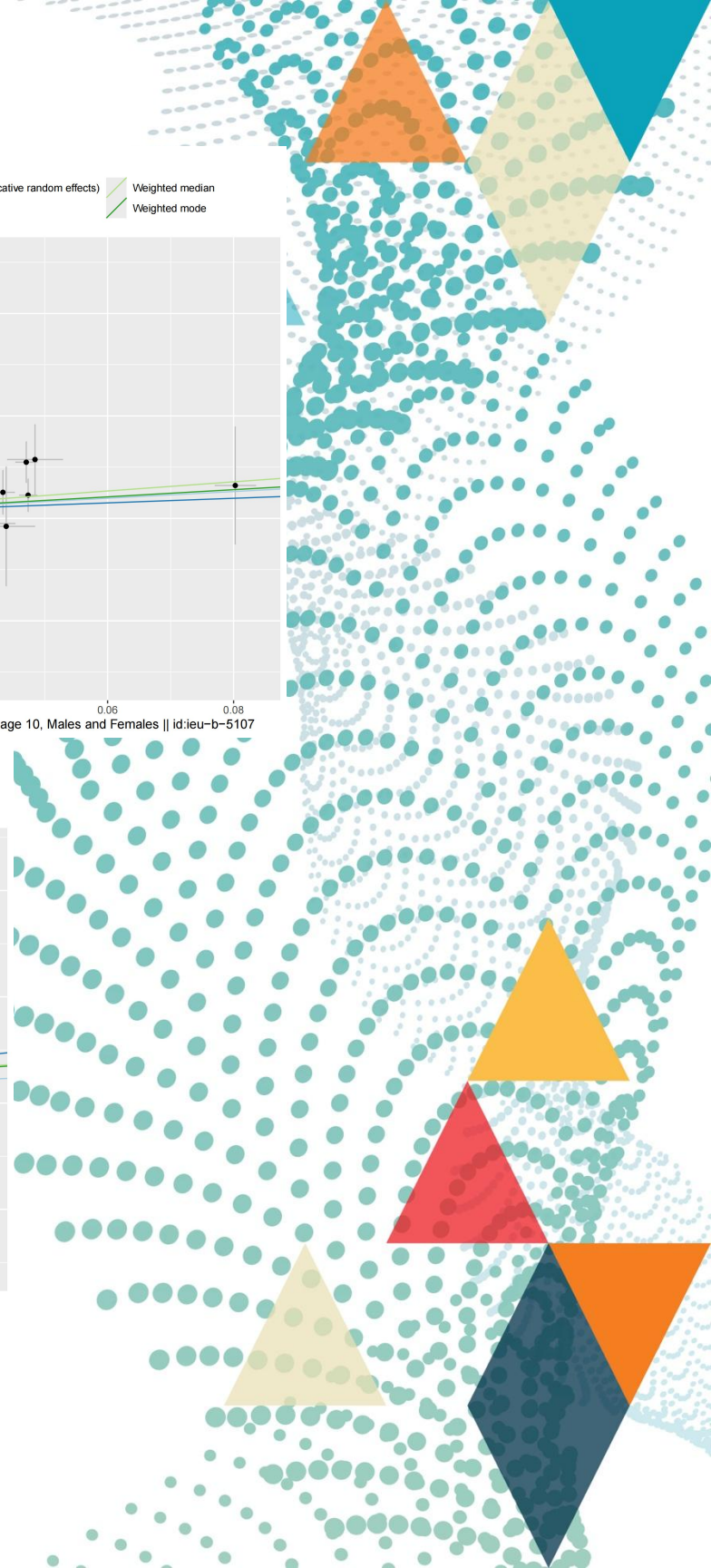
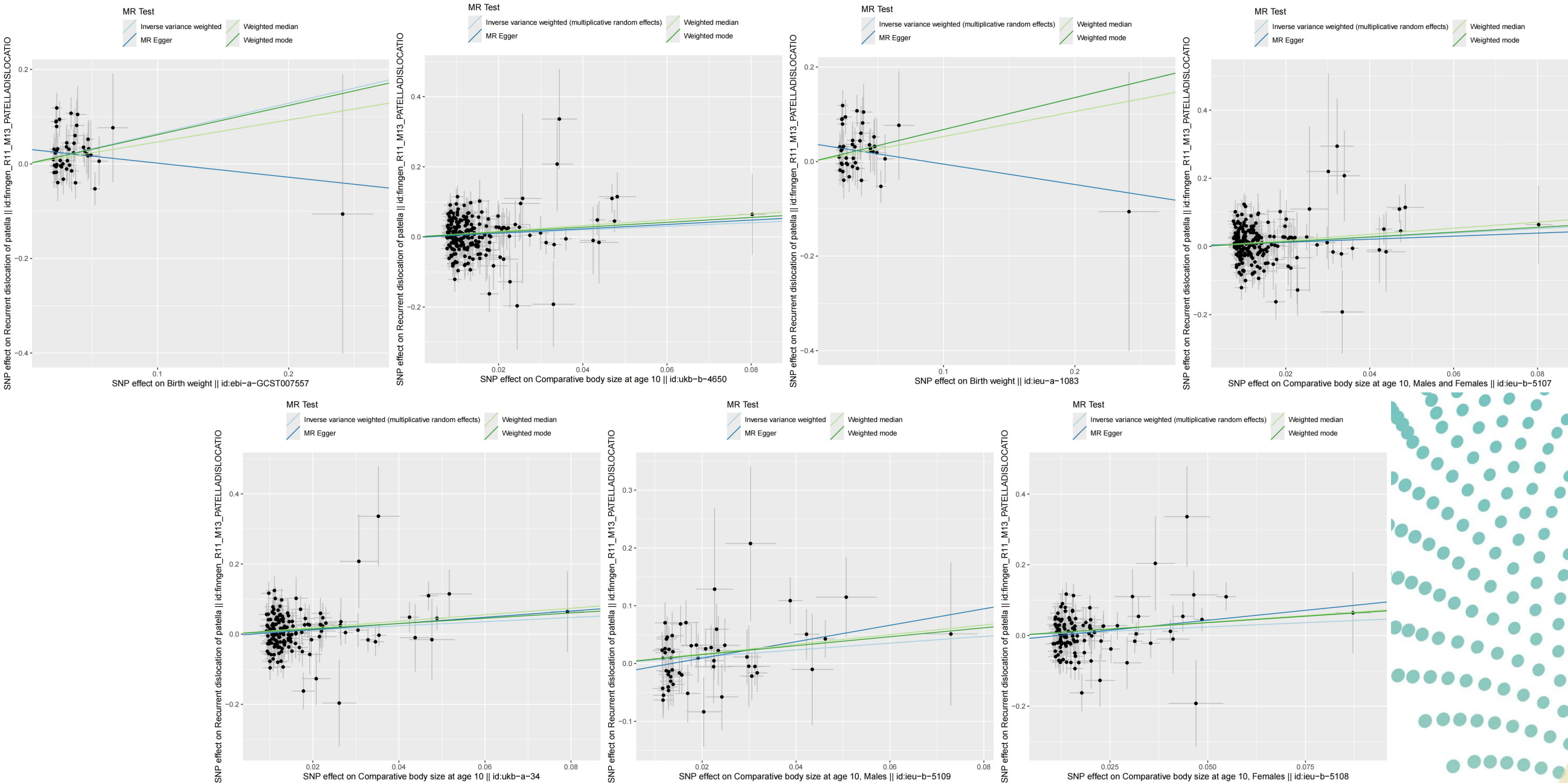
Birth Weight (ebi-a-GCST007557)	1.90 (1.28-2.82)
Birth Weight (ieu-a-1083)	1.96 (1.29-3.00)
Body Size at 10 (ieu-b-5107)	1.92 (1.23-3.02)
Body Size at 10 - Females(ieu-b-5108)	1.62 (1.01-2.60)
Body Size at 10 - Males(ieu-b-5109)	1.80 (1.07-3.02)
Body Size at 10 (ukb-a-34)	1.81 (1.16-2.82)
Body Size at 10 (ukb-b-4650)	1.66 (1.09-2.54)

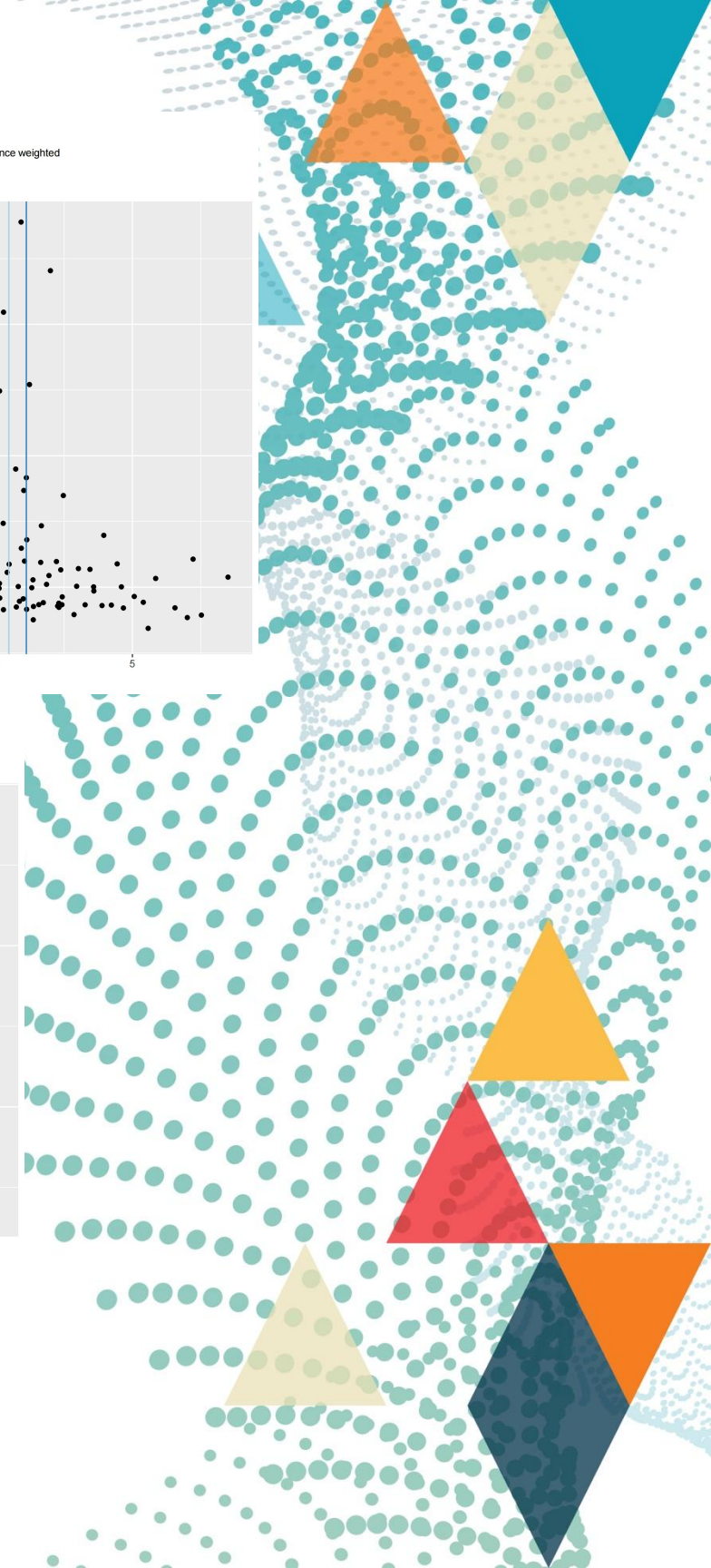
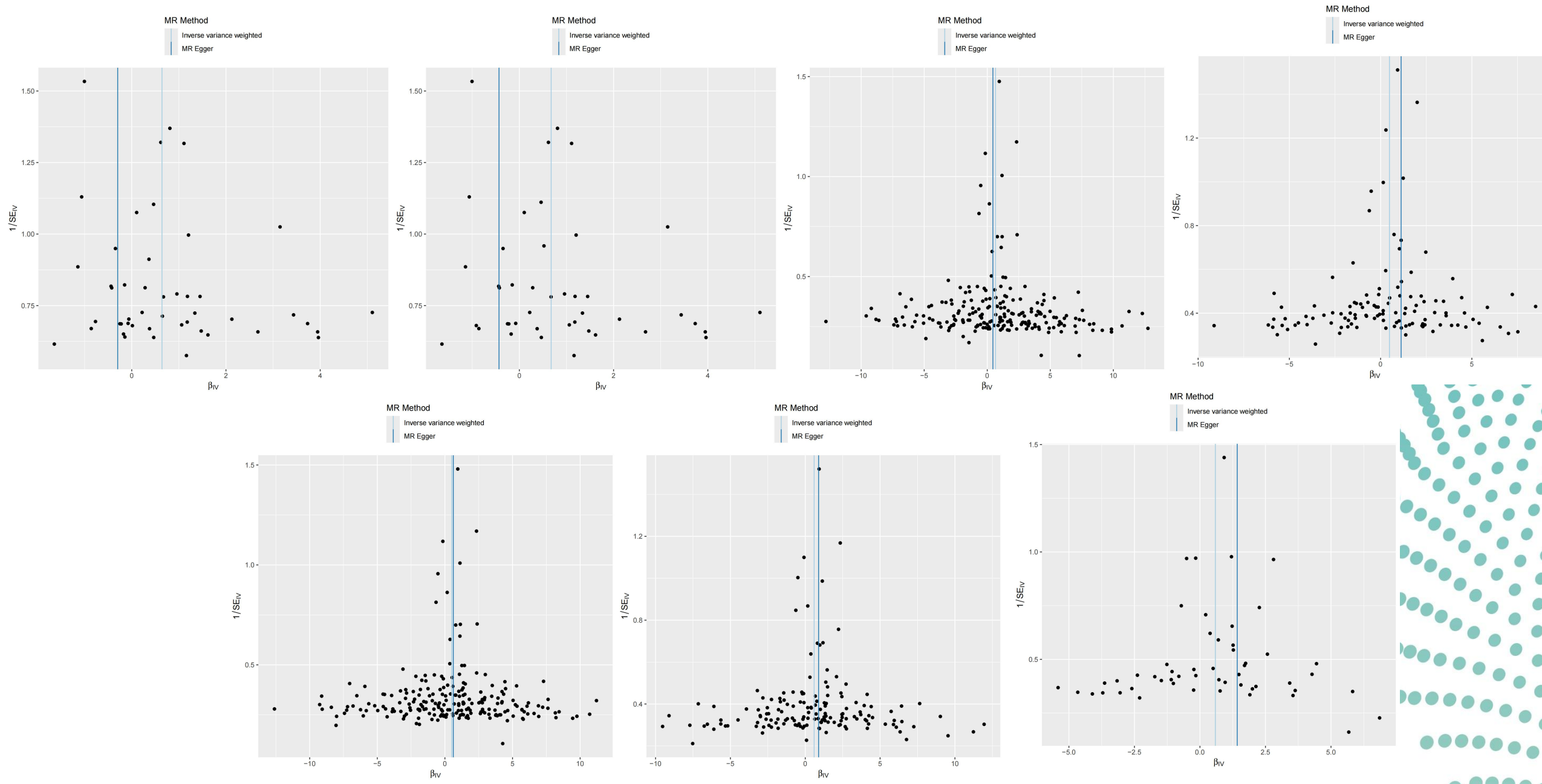


ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11



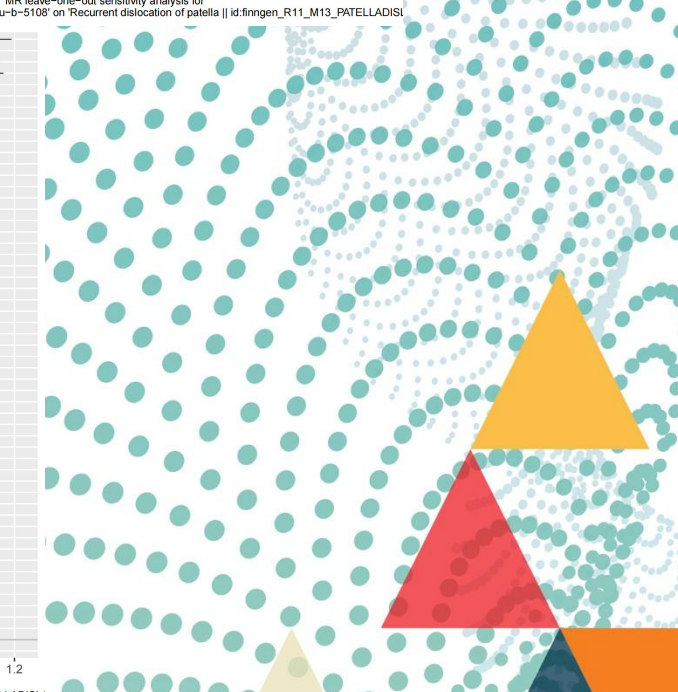
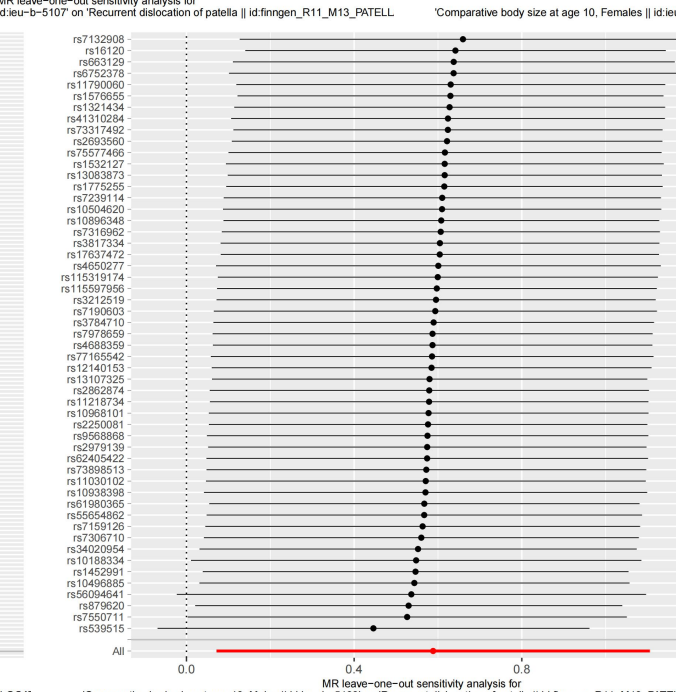
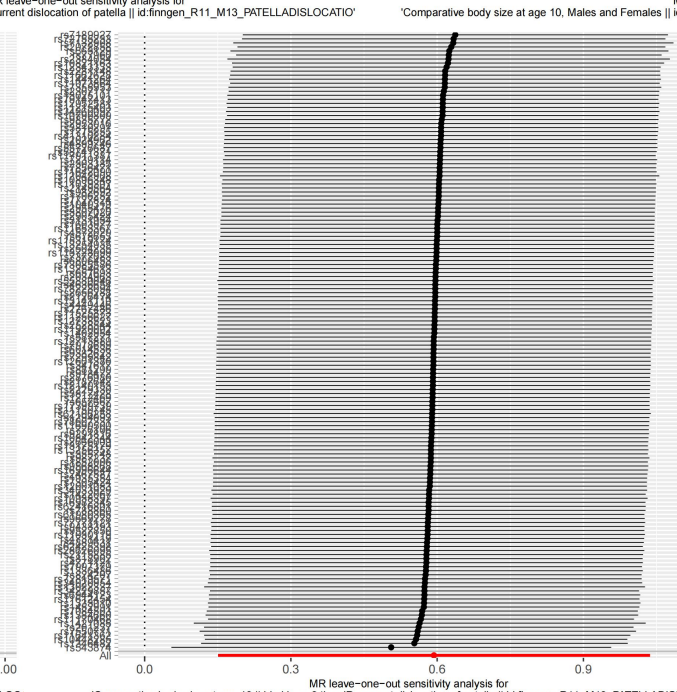
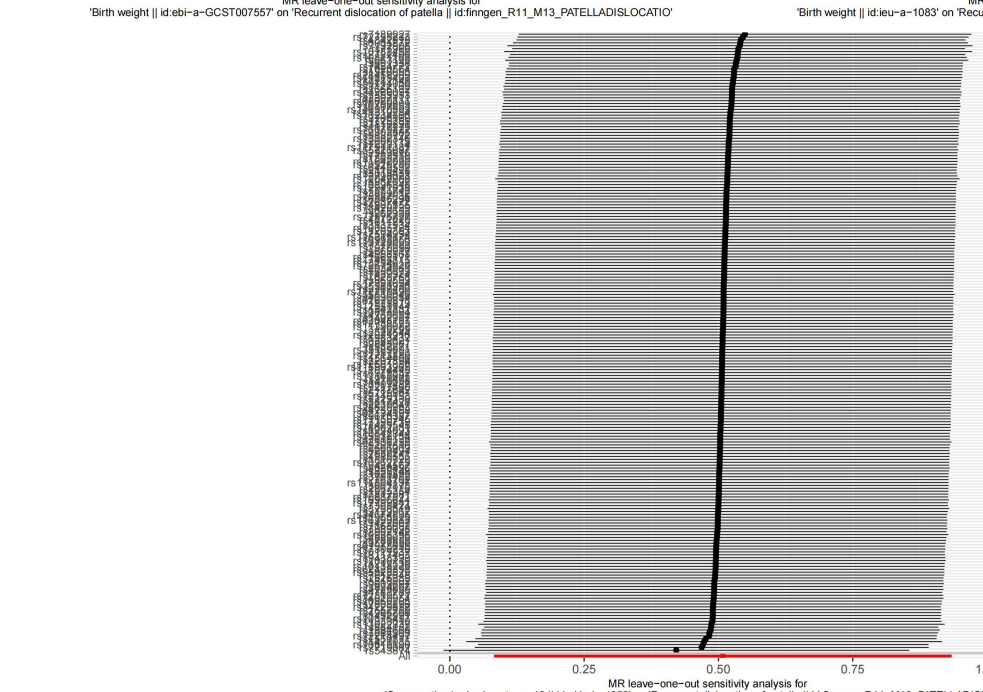
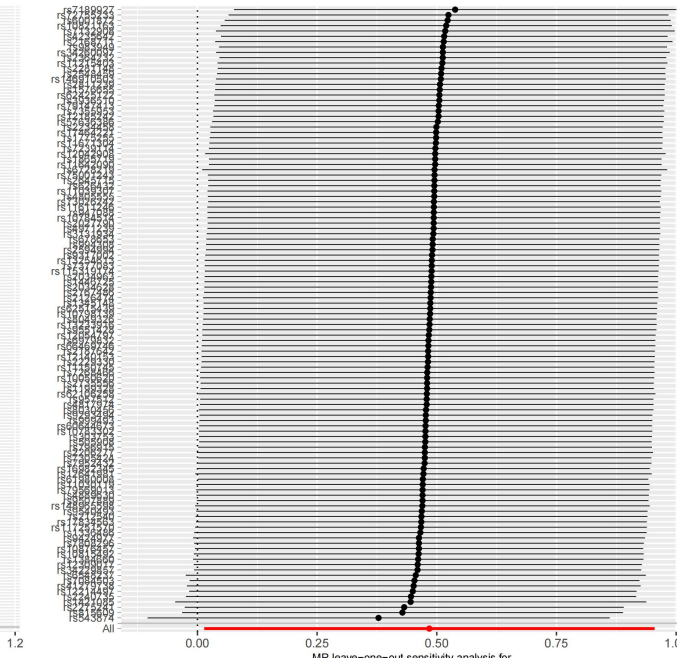
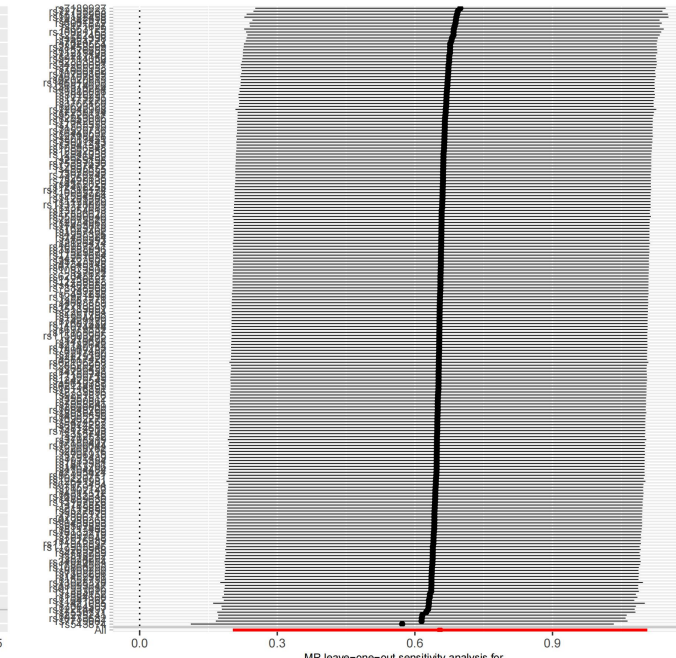
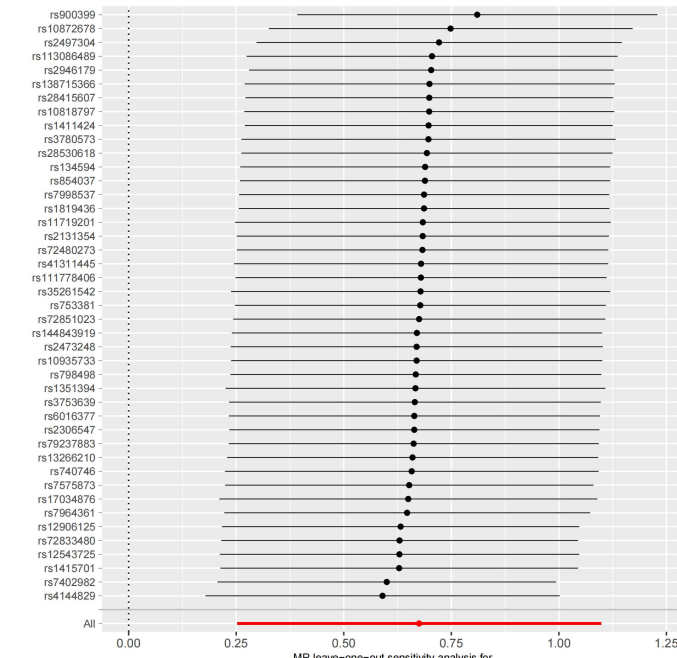
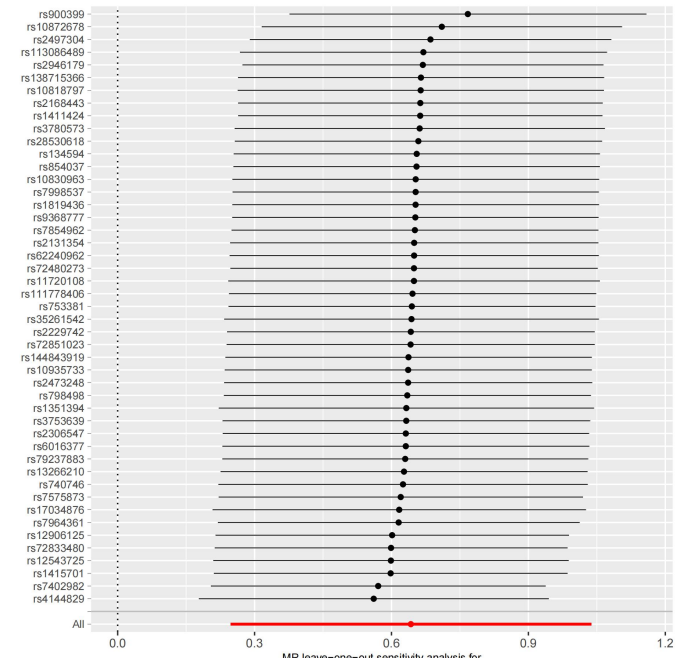
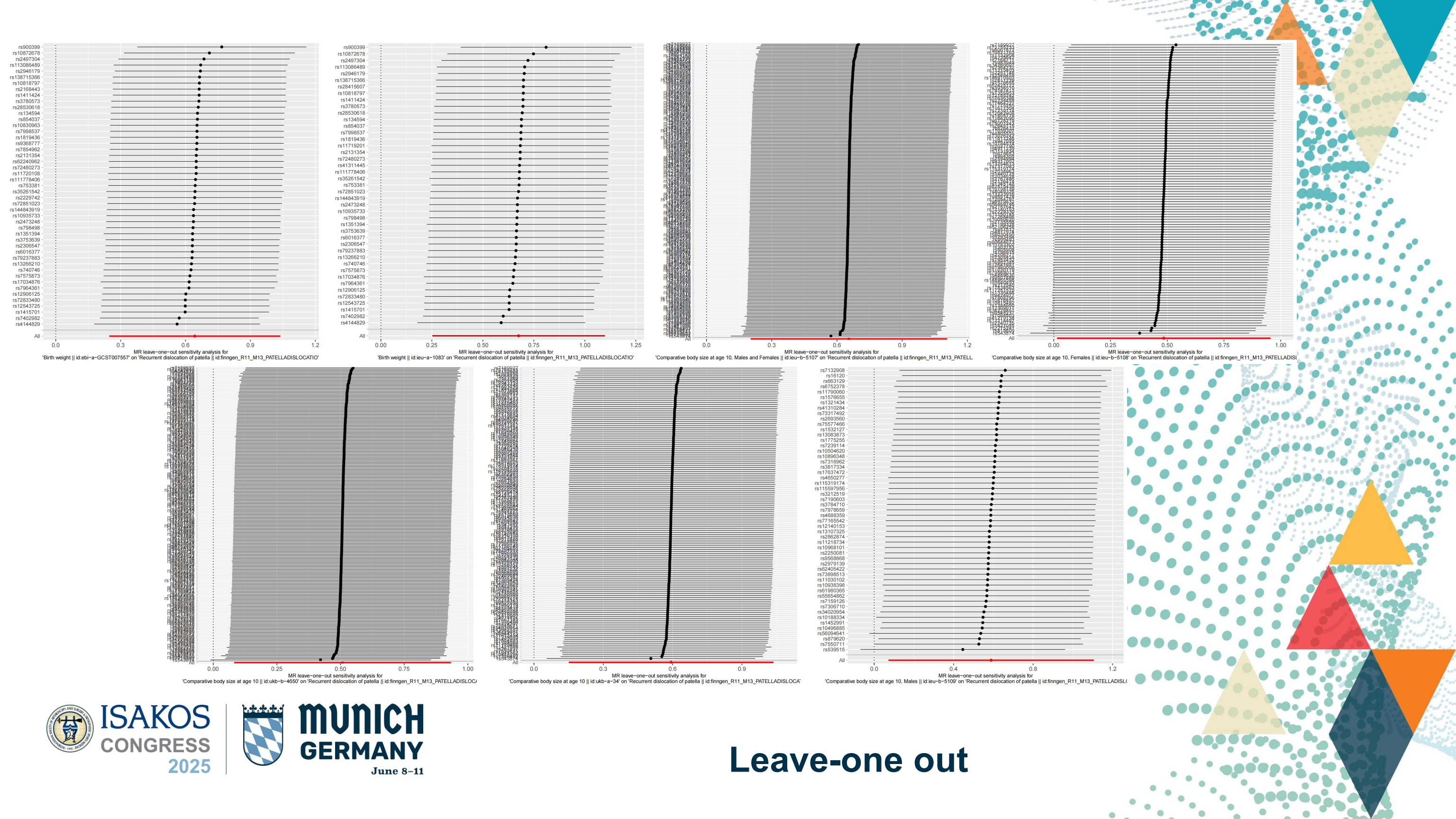


ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8–11

Tunnel

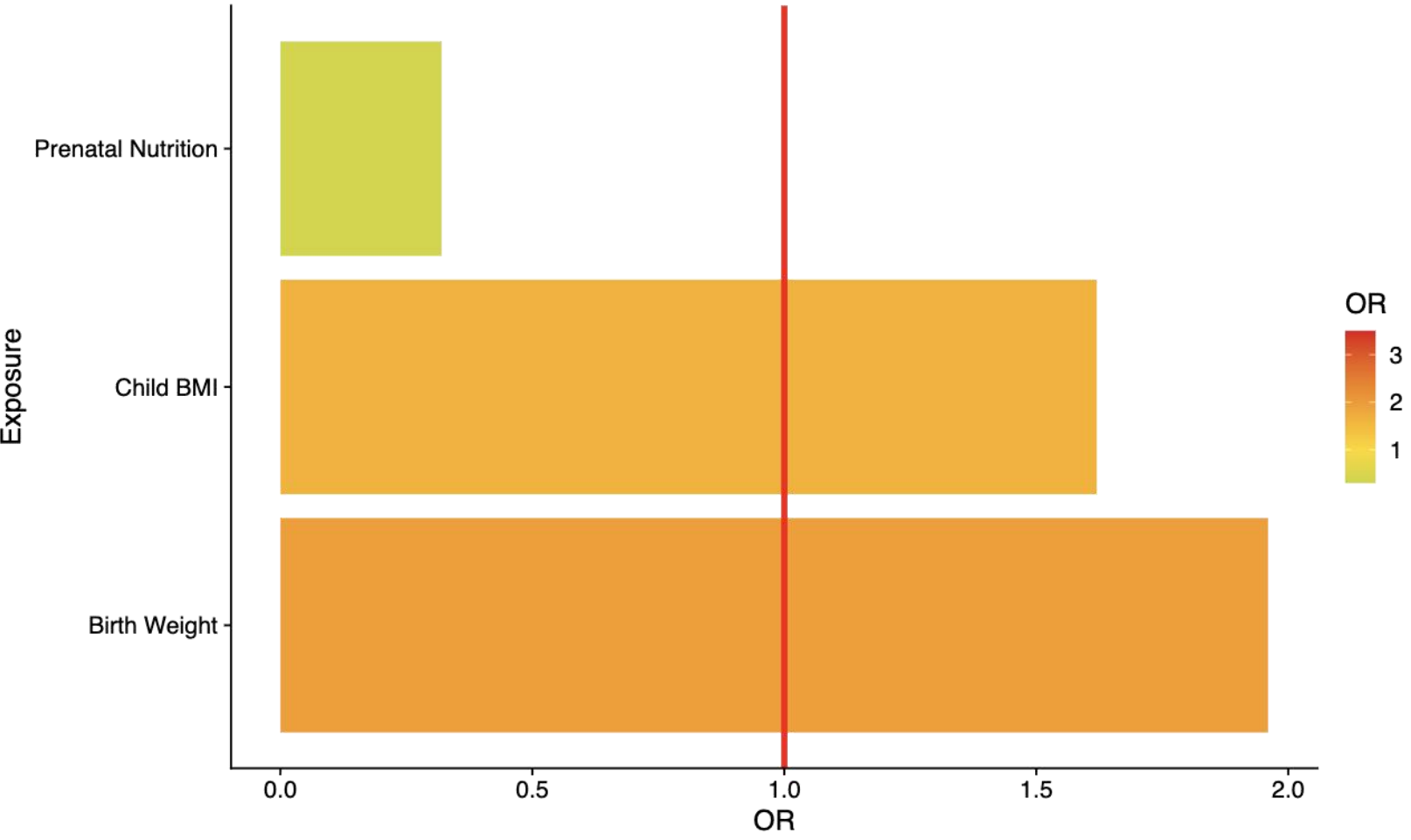


ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11

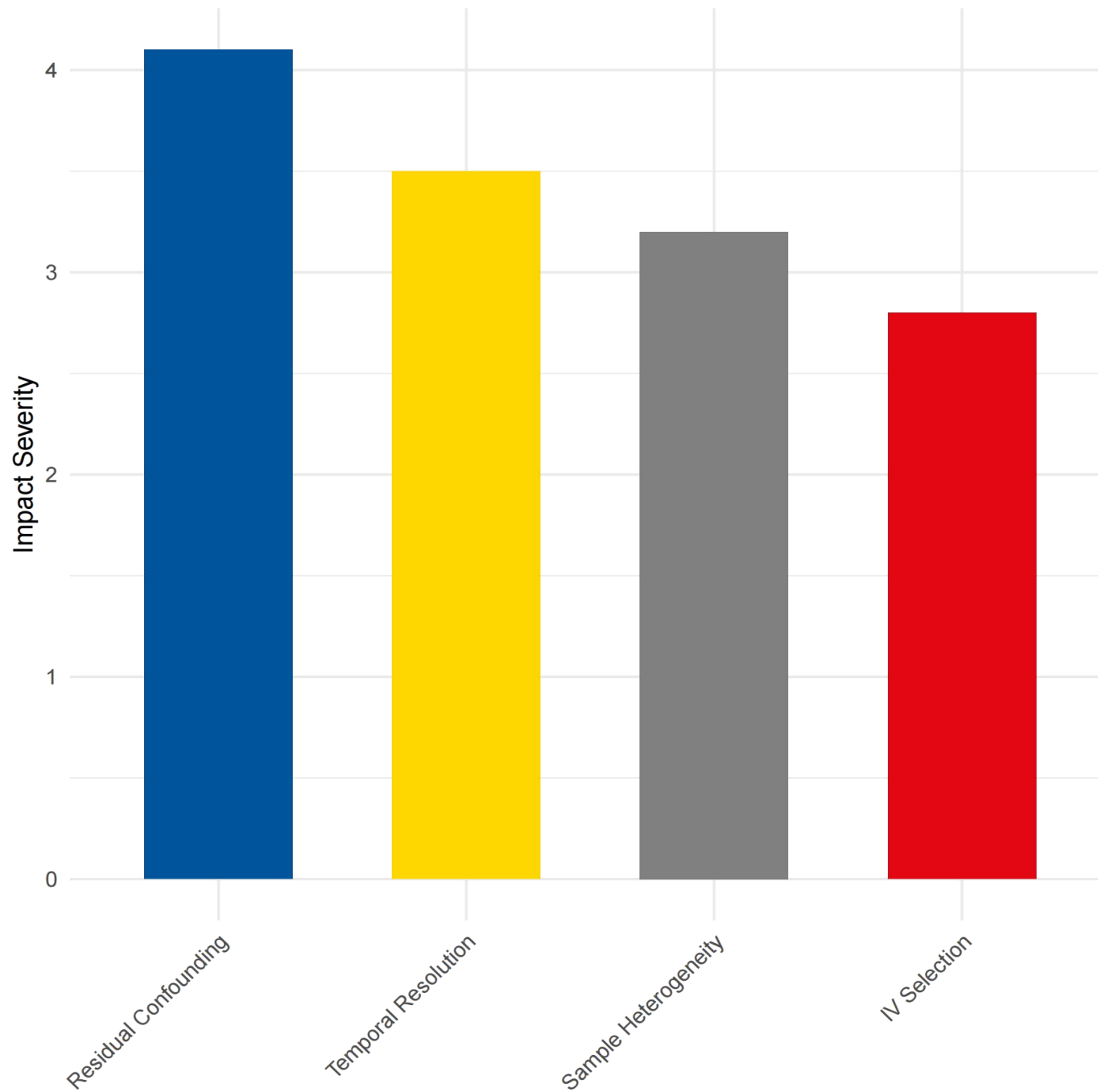
Leave-one out



	Category	Recommendation
1	Screening	Patellar stability screening for low birth weight infants
2	Monitoring	Annual BMI velocity monitoring in preadolescence
3	Intervention	Prenatal nutritional supplementation RCT

A Methodological Limitations Assessment

Impact Score (1=Minimal, 5=Critical)



B Future Research Roadmap

Multi-center cohort (N=50,000)
European & Asian populations

Single-cell sequencing
Patellar ligament tissue

Randomized controlled trial
Nutritional intervention

Study Limitations & Future Directions



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8–11

Principal Author

Chao Zhang

Department of Sport Medicine

Baoji Hospital of TCM

✉ zhangchsport@163.com

☎ +86 158 0229 62000



***Genes sculpt the temple of motion,
where life's first balance writes eternity
in bone.***

----Chao Zhang

Alone I initiate, Together we innovate.



References:Zhan Hongwei., Liu Jinmin., Sheng Xiaoyun., Yi Zhi., Feng Zhiwei., Wang Qian., Zhou Jialai., Wen Zhongjie., Geng Bin., Kang Xin., Xia Yayi., Jiang Jin.(2024). Comparison of Clinical and Radiological Outcomes With Body Mass Index After Medial Patellofemoral Ligament Reconstruction. Orthop J Sports Med, 12(10), 23259671241270358. doi:10.1177/23259671241270358



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11