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# KNEE JOINT SYNOVITIS AFTER TOTAL KNEE ARTHROPLASTY IS NOT CORRELATED TO PATIENT SATISFACTION SCORE

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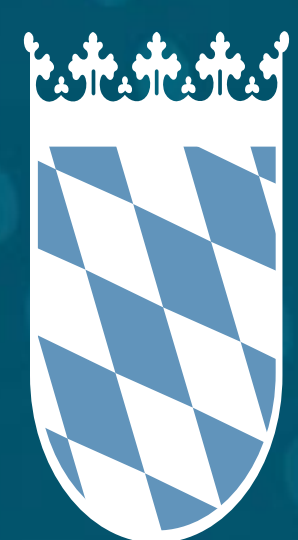


# Faculty Disclosure Information

- Our disclosure(s) are:
  - Speakers bureau/paid presentations: DePuy, Stryker, Smith and Nephew, Intellijoint, Sanofi, Zimmer
  - Paid consultant: DePuy, Hip Innovation Technology, Zimmer Biomet, MicroPort, Stryker, Smith and Nephew, Intellijoint, BD Health
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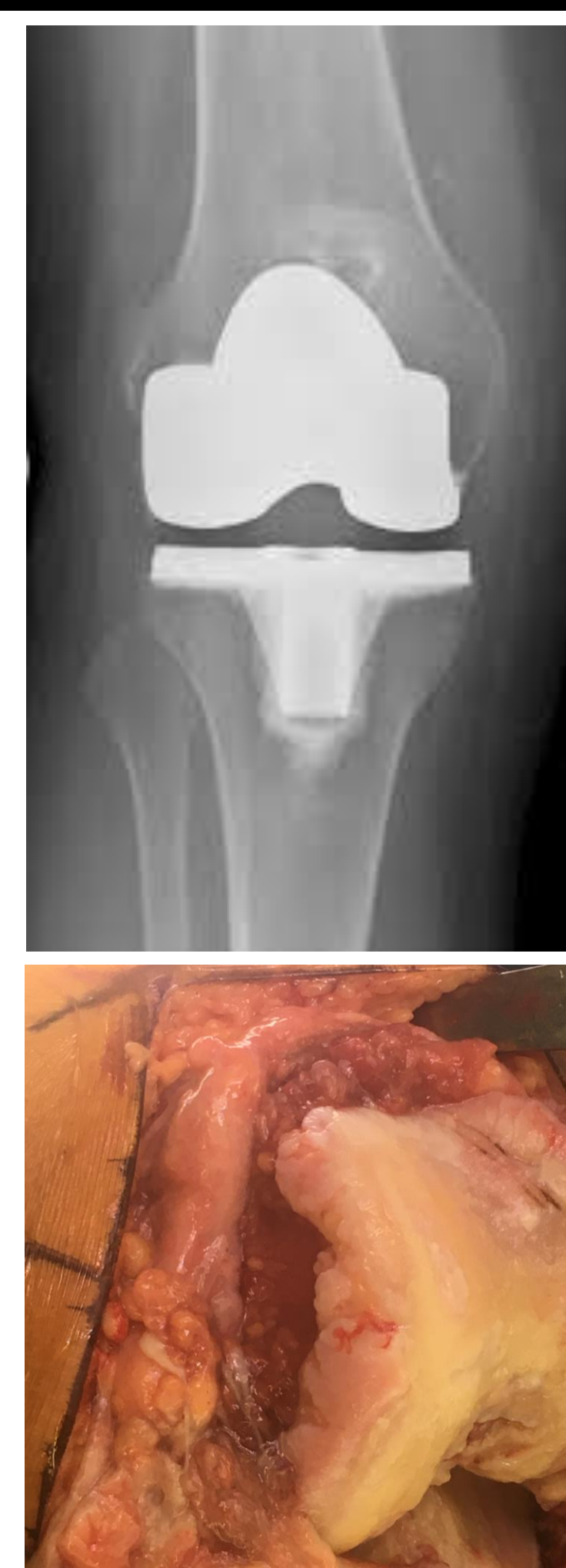
# KNEE JOINT SYNOVITIS AFTER TOTAL KNEE ARTHROPLASTY IS NOT CORRELATED TO PATIENT SATISFACTION SCORE

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## INTRODUCTION

### TOTAL KNEE ARTHROPLASTY (TKA)

- TKA is an established and effective intervention for advanced osteoarthritis (OA)
- Patient dissatisfaction for persistent pain or failing to achieve good clinical outcomes is common (~20% of patients) following primary TKA [1]
- Patient dissatisfaction after is attributed to several key factors: patient expectations prior to surgery, the degree of improvement in knee function, and pain relief following surgery [1]
- Synovitis has been shown to be present at both baseline and 1-year post-TKA and associated with pain [2]
- Persistent synovitis both pre-TKA and post-TKA in the subset of individuals, could potentially explain patient dissatisfaction and pain
- Further to this, it is unknown if synovitis is persistent (>2 years post-TKA) and if it is associated with patient dissatisfaction and adverse outcomes/dissatisfaction (pain, poor functional outcomes, and poor quality of life) post-TKA



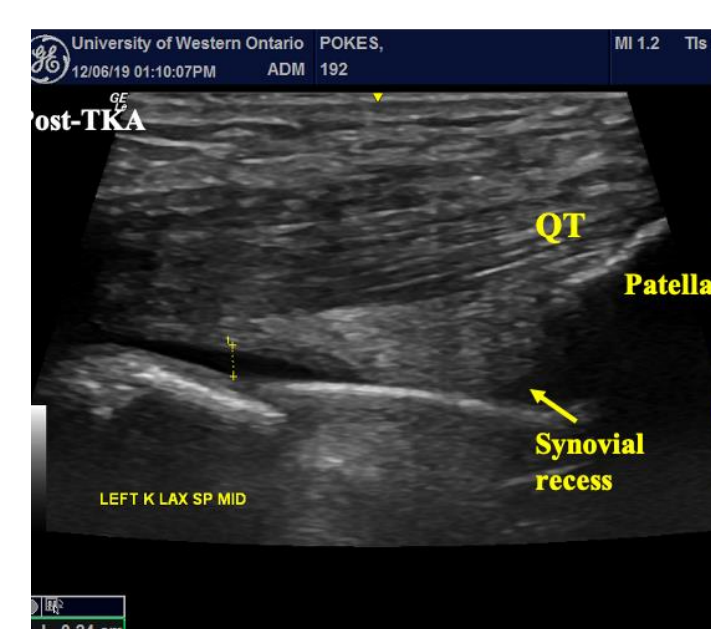
## PURPOSE

- The objectives of this research study were to: 1) determine the role of synovitis in dissatisfied patients  $\geq 2$  years post-TKA and 2) to determine if synovitis  $\geq 2$  years post-TKA associated with pain, poor functional outcomes, and poor quality of life

## METHODS

### DATA COLLECTION AND ANALYSIS

- Study participants  $\geq 2$ -5 years post-TKA with an arthroplasty trained orthopaedic surgeon were recruited
- Satisfied and dissatisfied patients were recruited based off the Knee Society Score Patient Satisfaction [3] rating (satisfaction was determined by  $\geq 24/40$  and dissatisfaction was  $<24/40$ )
- A clinical evaluation (demographics, history of knee symptoms, injury, medication use, height, weight, body mass index (BMI), and abdominal circumference)
- 3D ultrasound for synovitis based on the OMERACT knee OA protocol
- Patient reported outcome questionnaires (Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC))
- Functional assessment (30 second Chair Stand Test (CST))
- Pressure pain threshold (PPT)



### STATISTICS

- Pearson correlations were used to determine associations between satisfaction and WOMAC score, CST, PPT, and BMI
- Spearman correlations were used to determine associations between satisfaction and overall synovitis and synovitis sub-scores
- An independent t-test was used to compare satisfaction between sexes
- Statistical analysis was conducted using GraphPad Prism 9 and significance was accepted at  $p \leq 0.05$

## PROJECT SUMMARY

- Patient satisfaction following TKA was not correlated to the presence or burden of knee joint synovitis at  $\geq 2$ -5 years post-TKA

## RESULTS, CONCLUSION, AND DISCUSSION

### RESULTS

- $n=58$  patients ( $n=32$  satisfied and  $n=26$  dissatisfied) were recruited into the study (55% female, average age  $70 \pm 7.8$  years, average BMI  $31.6 \pm 4.9$  kg/m<sup>2</sup>)
- Satisfaction score was comparable between sexes ( $p=0.62$ ) and not correlated with BMI ( $r=0.02$ ;  $p=0.88$ )

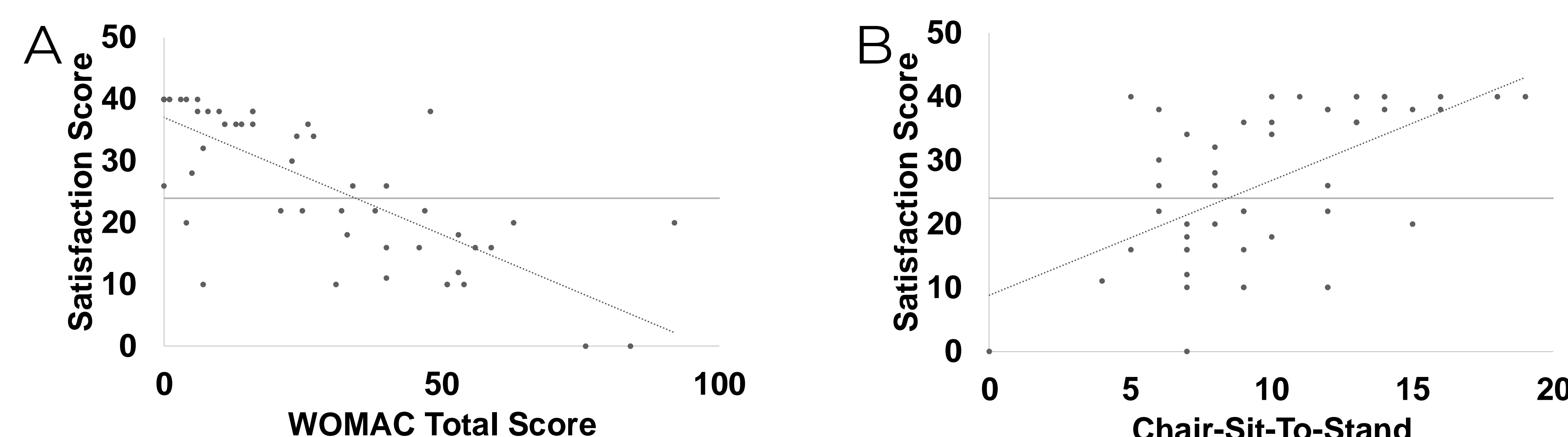


Figure 1. (A) Pearson correlation of satisfaction score with WOMAC total score ( $r=-0.76$ ;  $p<0.0001$ ) and (B) Pearson correlation of satisfaction score and CST ( $r=0.57$ ;  $p<0.01$ ).

- Satisfaction score was not correlated with overall synovitis grade, hypertrophy/hyperplasia ( $r_s=0.09$ ;  $p=0.55$ ), effusion, ( $r_s=0.10$ ;  $p=0.54$ ), or power doppler ( $r_s=-0.08$ ;  $p=0.54$ )

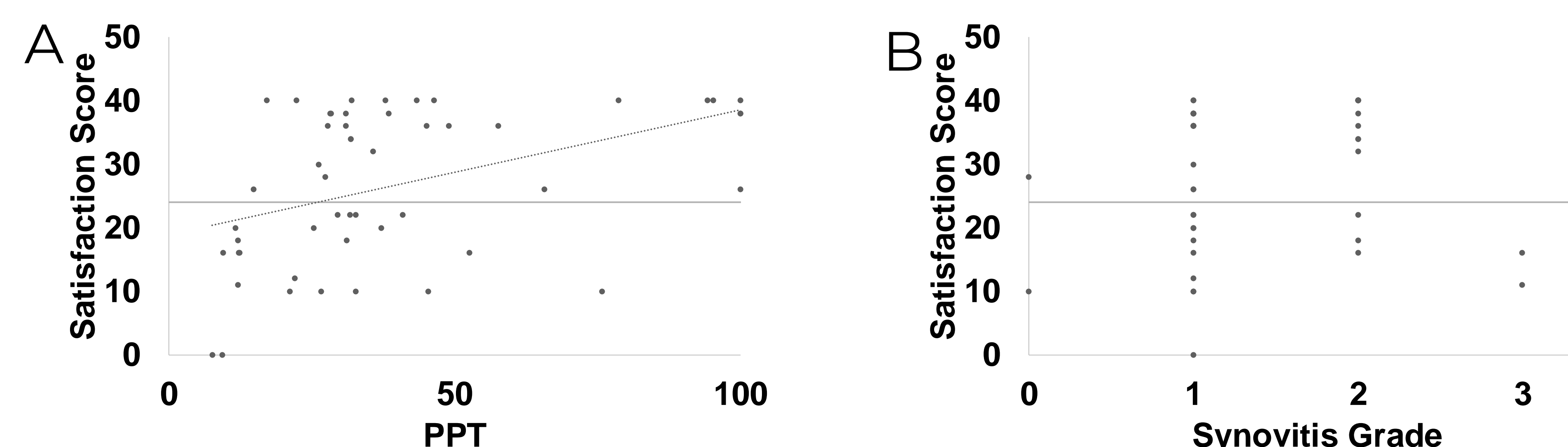


Figure 2. (A) Pearson correlation of satisfaction score with PPT ( $r=0.44$ ;  $p<0.01$ ) and (B) Spearman correlation of satisfaction score with overall synovitis grade ( $r_s=0.24$ ;  $p=0.13$ ).

- Satisfaction score was not significantly correlated with summed general synovitis score ( $r_s=-0.09$ ;  $p=0.55$ ), regional sum synovitis score ( $r_s=-0.18$ ;  $p=0.25$ ), or the burden of synovitis ( $r_s=-0.22$ ;  $p=0.15$ )
- Overall synovitis grade was not correlated with the CST ( $r=-0.09$ ,  $p=0.58$ ), PPT ( $r=-0.14$ ,  $p=0.37$ ), BMI ( $r=-0.24$ ,  $p=0.12$ ), or sex ( $r=0.07$ ,  $p=0.69$ )
- Overall synovitis grade was not correlated to WOMAC total score ( $r=-0.20$ ,  $p=0.20$ )

### CONCLUSION AND DISCUSSION

- Patient reported pain, stiffness, and poor physical function at 2 years following TKA was correlated to decreased patient satisfaction
- Patient satisfaction following TKA ( $\geq 2$ -5 years post-TKA) was not correlated to the presence or burden of knee joint synovitis
- Patients who were satisfied with their TKA demonstrated improved functional outcomes and pain pressure threshold (tissue sensitivity)
- Further characterization of synovitis at a cellular level should be considered in future studies

### REFERENCES

1. Gunaratne *et al.* JOA, 2017.
2. Li *et al.* EFFORT Rev, 2020.
3. Scuderi *et al.* CORR, 2012.

### ACKNOWLEDGEMENTS



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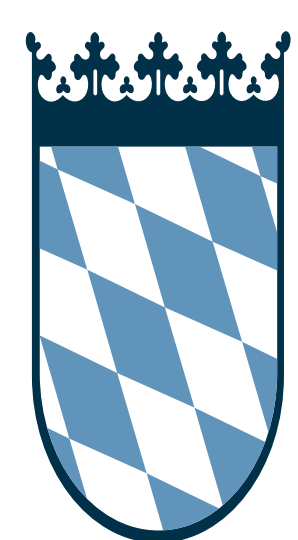


# References

1. Gunaratne et al. JOA, 2017.
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