

# Impact of NSAID administration on *Staphylococcus epidermidis* implant-related infection and response to antibiotic treatment

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## Introduction

- Implant-related infection is a potentially devastating orthopedic complication.



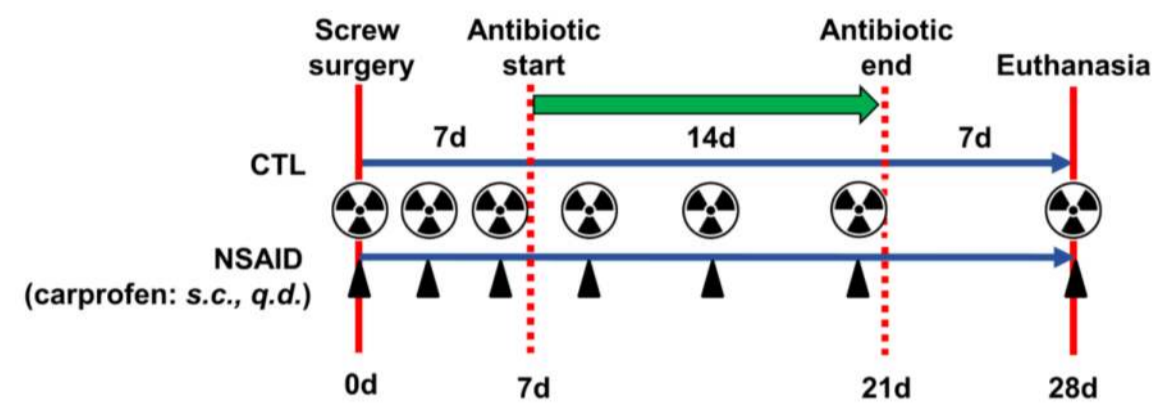
- It is currently unknown if NSAID treatment affects the severity of an implant-related infection, or its response to antibiotic therapy.

## Aim

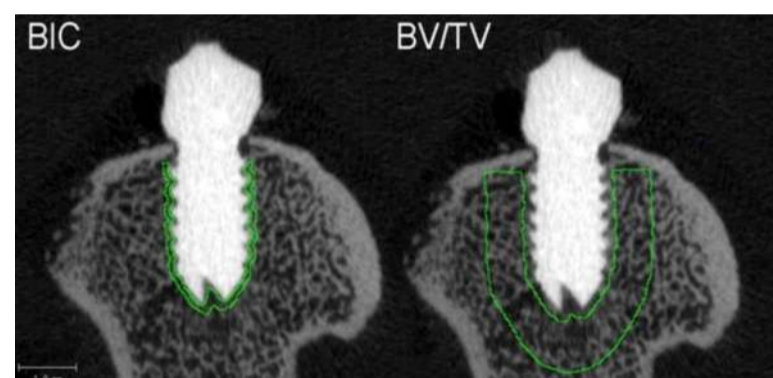
- Determine the impact of NSAID administration on *S. epidermidis*-induced bone infection.
- Assess the impact of NSAID treatment on antibiotic efficacy.

## Methods

- Female Wistar rats (20-24 weeks) were implanted with a *S. epidermidis*-colonized PEEK screw into the proximal tibia.<sup>[2]</sup>



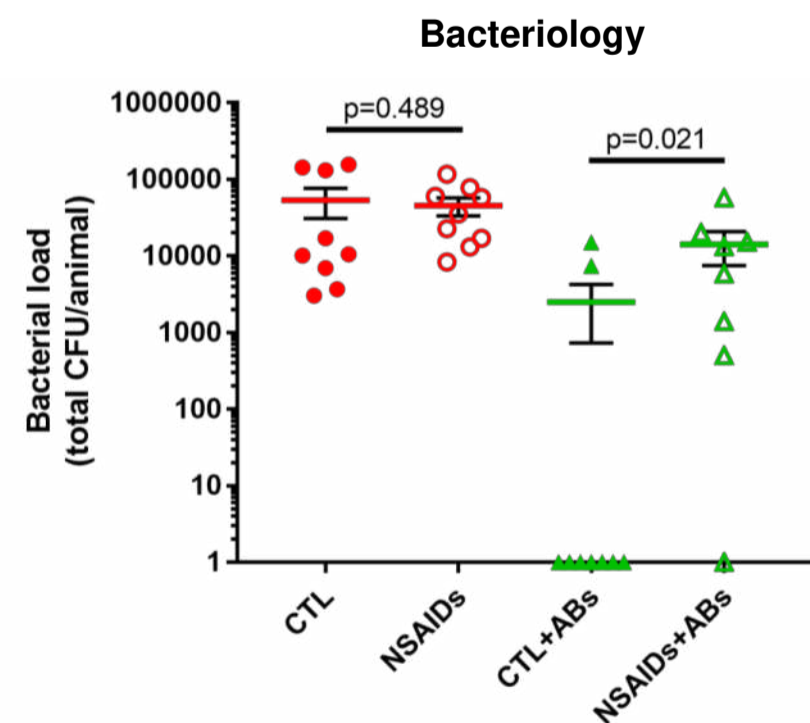
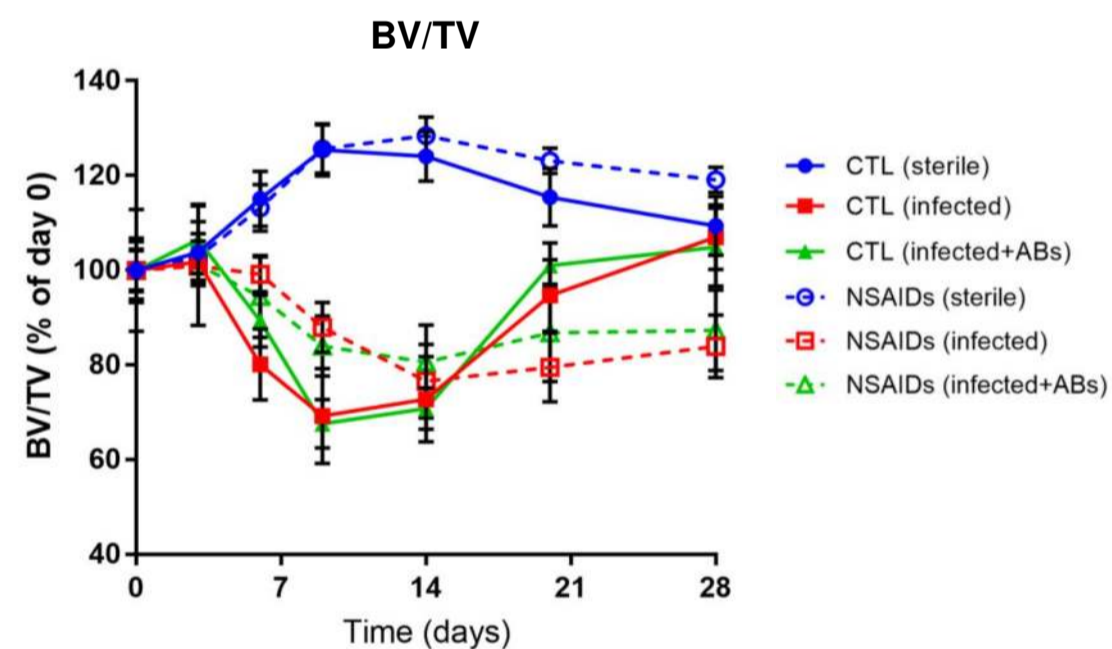
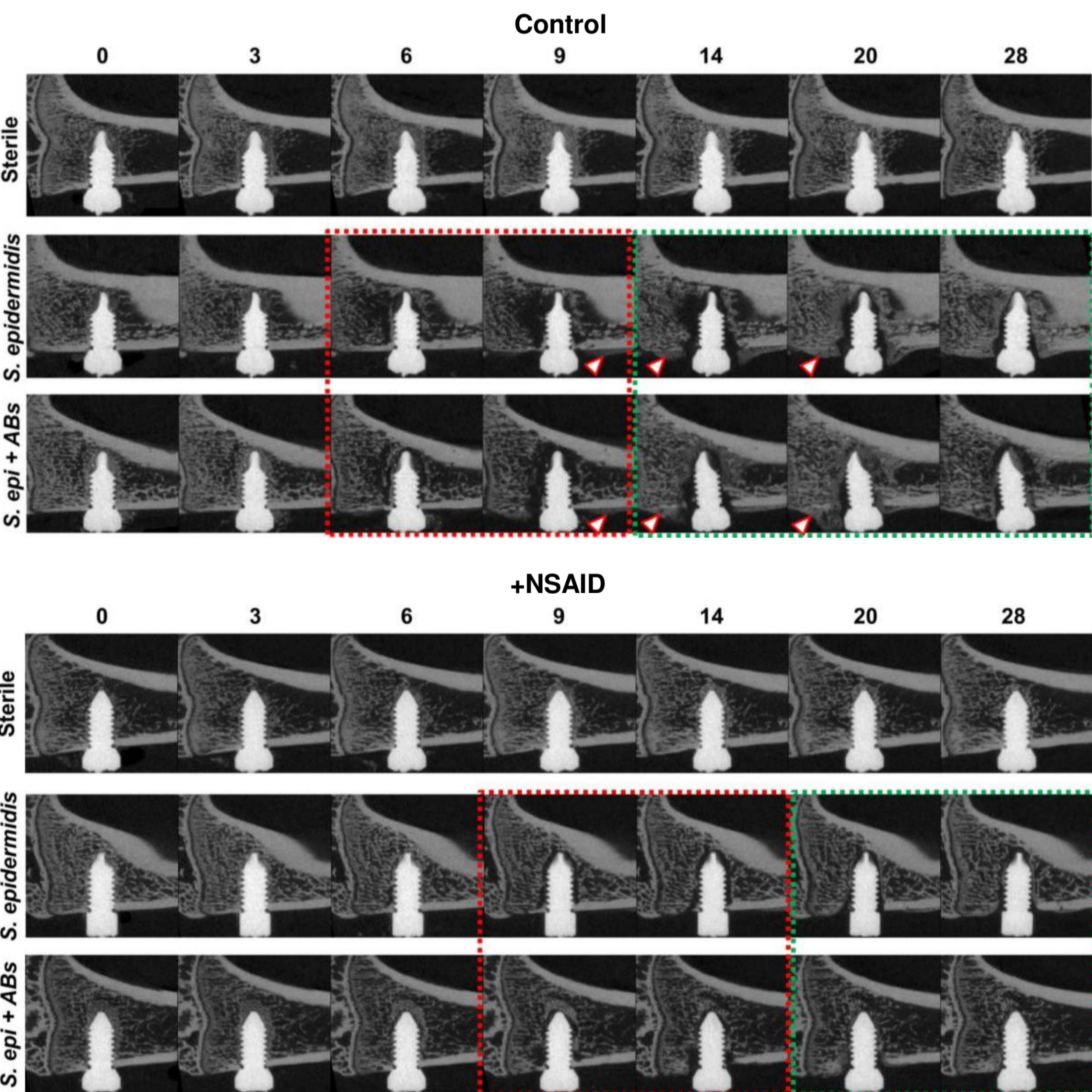
- MicroCT imaging at post-op, 3, 6, 9, 14, 20 and 28 days.



	<i>S. epidermidis</i>	Antibiotics
Group A	+	-
Group B	+	+
Group C	-	-

- Quantitative bacteriology at 28 days.

## Results



## Conclusion

- S. epidermidis* rapidly induces osteolysis followed by reparative responses in healthy animals.
- Chronic NSAID administration reduces osteolysis and prevents reparative responses.
- Antibiotic therapy (when initiated at day 7) has limited benefit on bone.
- NSAID administration dramatically reduces antibiotic efficacy.

<sup>[1]</sup> Jeffcoach DR et al, J Trauma Acute Care Surg. 2014;76:779-83  
<sup>[2]</sup> Stadelmann V. et al, Biomed Res Int. 2015;587857