

# Mandibular bone : an unusual trabecular bone?



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## INTRODUCTION

- **Mandibular bone** : Teeth-bearing bone (alveolar) with high turnover, particularly sensitive to local factors.

Specific skeletal-site due to oral functions (masticatory activity) : specific trabecular microarchitecture?

Compare trabecular bone microarchitecture between 2 mandible areas (toothed and untoothed area) and the tibia in adult rats.

## MATERIAL AND METHODS

Female SD rats (6 m.o) n=9 NBF10% overnight Ex vivo  $\mu$ CT analyses

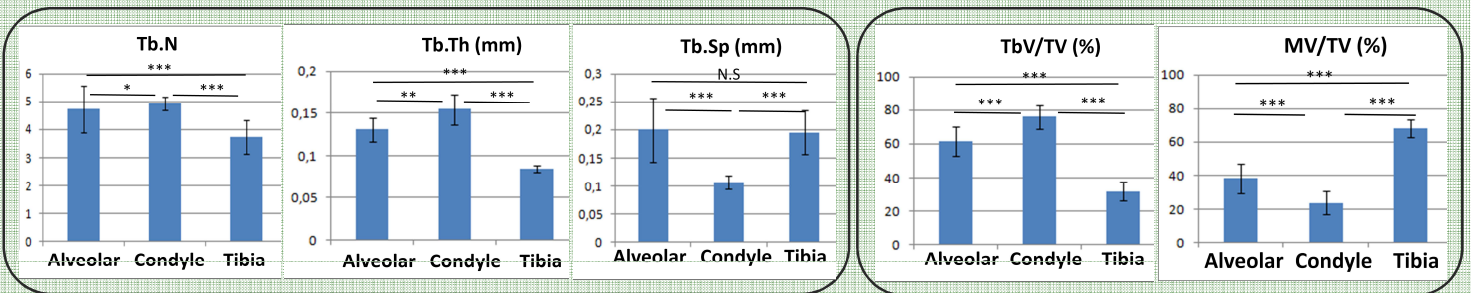
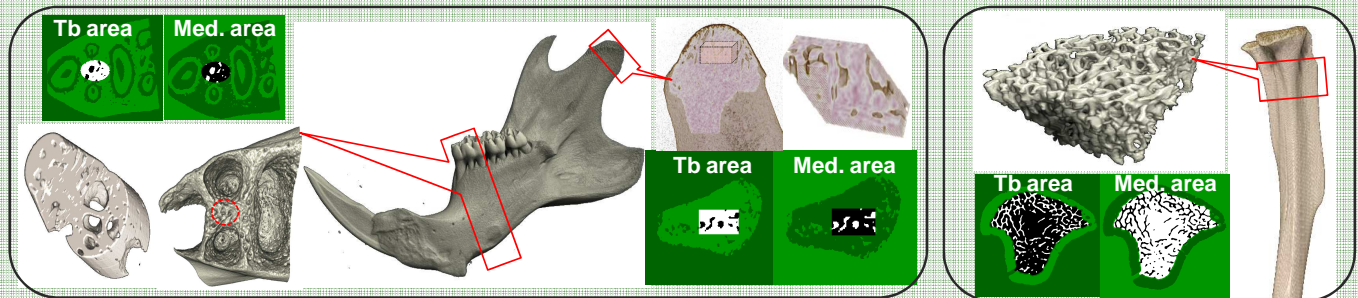
**Skyscan 1172** (Bruker, Kontich, Belgium)  
 10 $\mu$ m<sup>3</sup> (voxel size), 80kVp, 100 $\mu$ A, 0,5°/180°, 2400 ms, FA 3

- **Mandible** : Intra-radicular alveolar bone of the first molar and central area of the condyle
- **Tibia** : Secondary spongiosa of the proximal epiphysis

**Measurements**: Trabecular number (Tb.N), thickness (Tb.Th) and separation (Tb.Sp), relative trabecular volume (TbV/TV), relative medullar volume (MV/TV)

## RESULTS

### X-ray microtomography : mean +/- SD – Wilcoxon test



	Alveolar vs Tibia	Condylar vs Tibia	Alveolar vs Condylar
Tb.N	+26%	+32%	-5%
Tb.Th	+54%	+82%	-18%
Tb.Sp	=	-82%	+86%
TbV/TV	+29,5%	+44,5%	-14,5%
MV/TV	-30%	-44%	+14,5%

p<0,01 \*\*\*  
 P<0,05 \*\*  
 P<0,1 \*  
 NS No significant

## CONCLUSION

- Mandibular oral functions leads to more dense trabecular network compared to tibia.
- In the mandible area, teeth-bearing bone (alveolar) leads to a different microarchitecture compared to condylar bone.
- Present data highlight the importance to study mandibular response under pathophysiological conditions, such as osteoporosis, and to precise bone marrow compartments alterations.

## REFERENCES

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