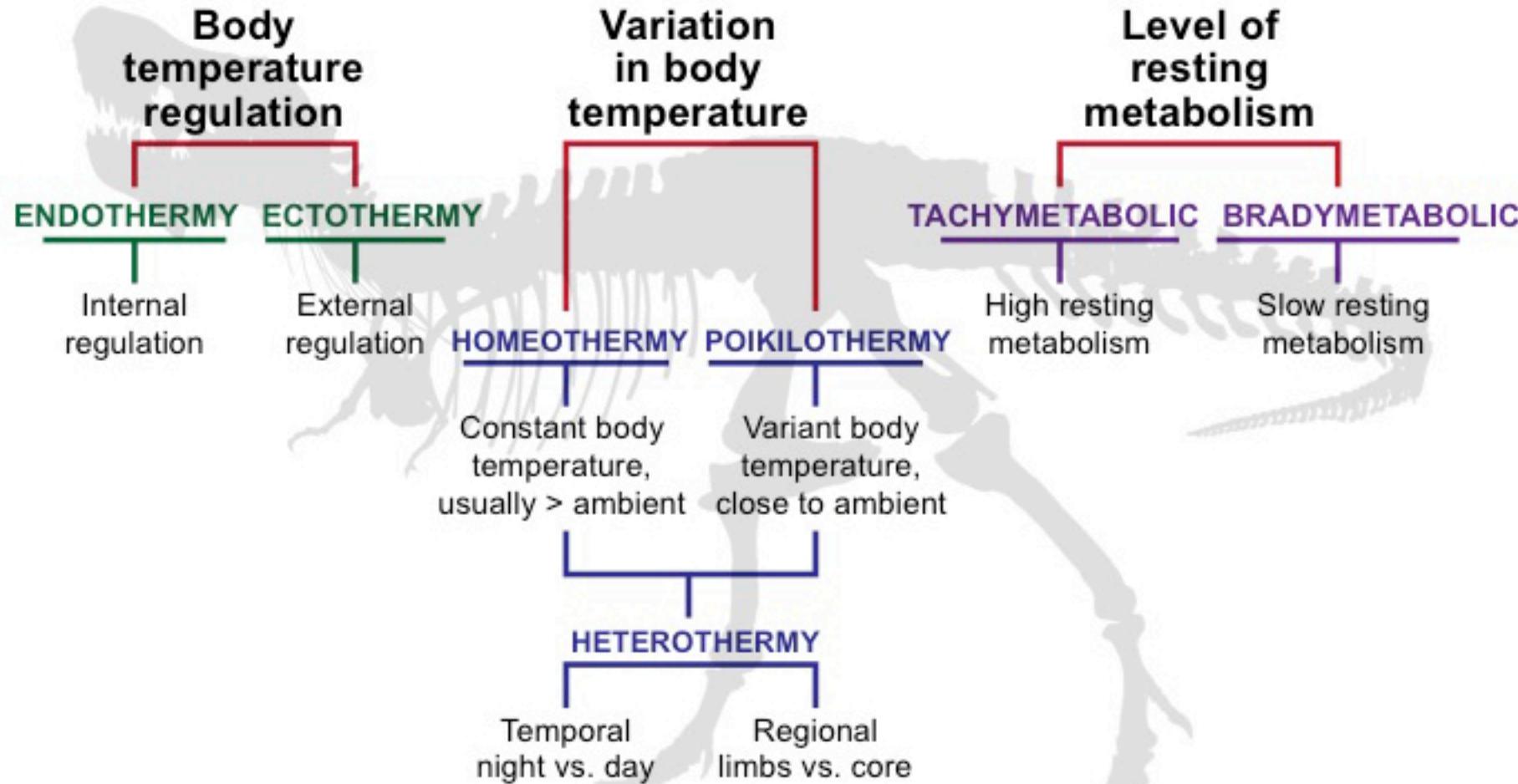
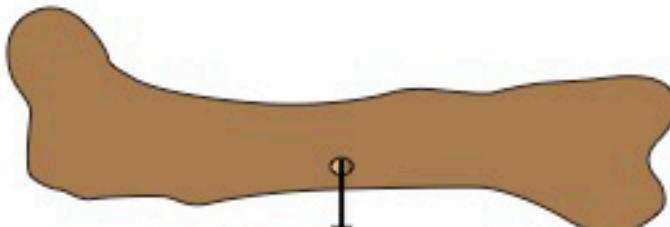
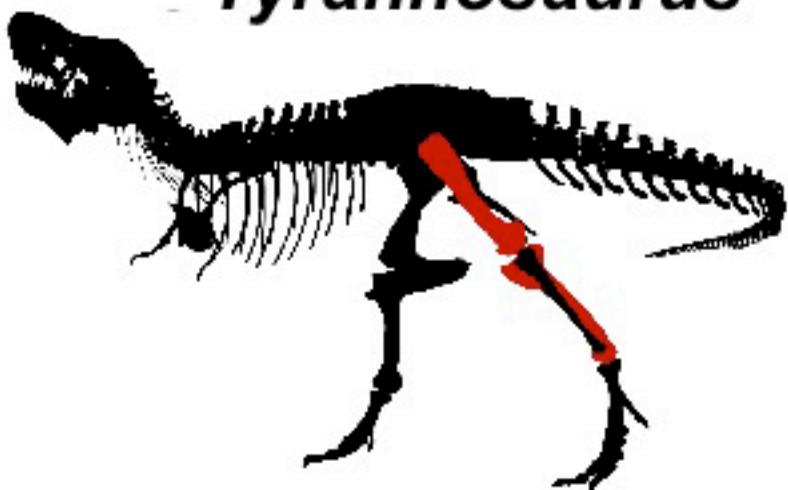


Thermophysiology



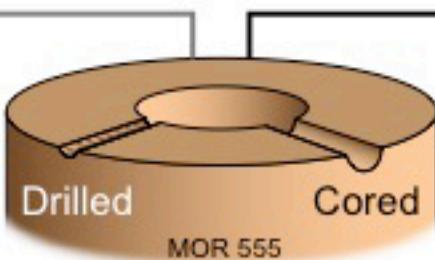
Resampling *Tyrannosaurus*



$\delta^{18}\text{O}$ carbonate + $\delta^{18}\text{O}$ phosphate

Barrick and Showers, 1994

4-5 samples of powdered bone from drilled hole



- $\Delta^{18}\text{O}$ phosphate < 1.0‰
- Body temperature variability < 4.3°C

This study

For each core, average of 7 individual slices every 3–8 mm



- $\Delta^{18}\text{O}$ phosphate = 1.3–3.0‰
- Body temperature variability = 5.2–12.9°C

Thermophysiology

Body temperature regulation

ENDOTHERMY **ECTOTHERMY**

Internal regulation

External regulation

Variation in body temperature

HOMEOTHERMY

Constant body temperature,
usually > ambient

POIKILOTHERMY

Variant body temperature,
close to ambient

Level of resting metabolism

TACHYMETABOLIC

High resting metabolism

BRADYMETABOLIC

Slow resting metabolism

HETEROTHERMY

Temporal
night vs. day

Regional
limbs vs. core

Our conclusion
based on ↑
 $\delta^{18}\text{O}_p$ variability.