AO Foundation

Test your surgical skill

Heat generation during drilling

Tasks

1. Observe the difference between a sharp and a blunt drill bit
2. Drill hole through both bone cortices using blunt or sharp drill bits, or K-wire, with the assistance of the appropriate drill sleeve
3. Leave drill bit in place with tip sticking out
4. Observe on the screen, how the temperature develops
5. Repeat steps 1–4 with different drill bits or K-wires and compare results

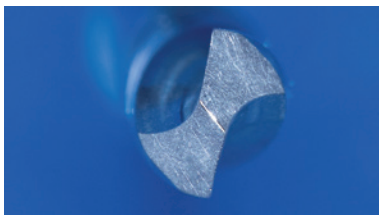
Learning outcomes

- Learn to differentiate between sharp and blunt drill bits
- Predict heat distribution in bone cortex
- Recognize and compare results from blunt or sharp drill bits or K-wires

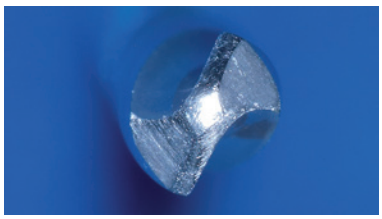
Take-home message

- Use sharp drill bits to reduce heat generation and damage to bone
- Blunt drill bits must be replaced

Observe the surface of the very tip of the drill bit

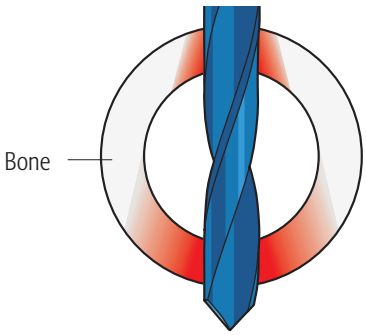


Sharp: no reflection of light on the tip



Blunt: light is reflected on the tip

Heat generated during drilling causes conically shaped volume of damage to the cortex



Cell necrosis as a function of temperature and duration of heat exposure