Test your surgical skill

Torque measurement of bone screws

Tasks

1. Insert electronic screwdriver into screw head so that it is properly engaged; leave screwdriver engaged in the same screw for the whole session.
2. Tighten the screw until you feel you have reached optimal torque.
3. Press the marked button on the screen.
4. Now exceed optimal torque so that screw thread in bone is stripped.
5. Press again the marked button on the screen and analyze result.
6. Repeat steps using different screws and different bone models.

Optimal tightening of screws

Screws need to be tightened between ~60% and ~85% of their maximum torque.

- If torque is too high, the interface between screw and bone is destroyed and purchase is lost.
- If torque is too low, the screw can’t transmit forces applied.

Learning outcomes

- Feel and achieve optimal torque in different bone qualities.
- Practice over- and undertightening of screws.
- Investigate potential problems when inserting the screwdriver into the screw head.

Take-home message

Optimal torque should be between 60% and 85% of maximum torque.