AO Foundation

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

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

Optimal tightening of screws

Screws need to be tightened between $\sim\!60\%$ and $\sim\!85\%$ of their maximum torque

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- 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

Torque measured

