

# Are 3D Printed Drill Guides Better at Pedicle Screw Placement than Freehand?

3D printed (3DP) pedicle screw drill guides for fluoroscopic pedicle screw placement

3DP drill guide vs. freehand: a meta-analysis

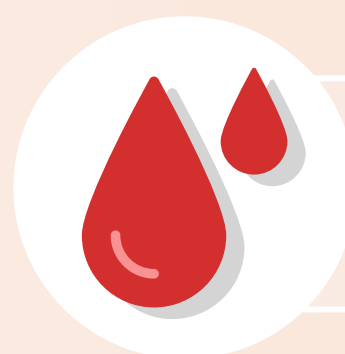
6 studies including 205 patients

Significant difference favoring 3DP guide

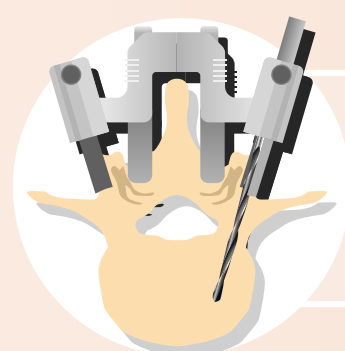
No significant difference in



↓ Operation times (WMD\* = -32.32 min)



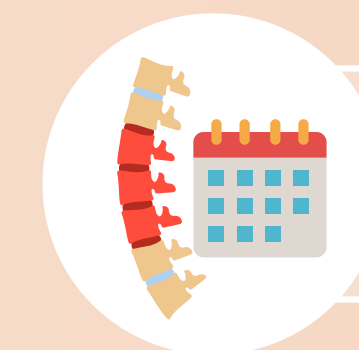
↓ Estimated blood loss (WMD = -51.41 mL)



↑ 'Excellent' screw placement (WRD# = -0.12)



Pain and Japanese Orthopedic Association scores



Risk of 'poor' or 'good' screw placement



Surgical complications

\*Weighted mean difference | #Weighted risk difference

**3DP drill guides could be a convenient alternative to freehand technique for pedicle screw placement**

How Much Weight Loss is Required for Cardiovascular Benefits. Insights From a Metabolic Surgery Matched-cohort Study

Wallace et al. (2020) | DOI: 10.1097/BSD.0000000000001023

