

# Tap or not to tap prior to pedicle screw insertion – the real benefit or waste of time? Clinical prospective cohort study in adolescent idiopathic scoliosis patients

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**Introduction.** Insertion of transpedicular screws in spinal surgery is often preceded by tapping. Literature suggest that tapping may be beneficial in osteoporotic patients, especially in case of cement augmented screws, but there is no data on advantages or disadvantages in all other clinical situations. We don't know how it affects accuracy, screw pull out strength, but also perioperative parameters (operation time, blood loss eg) in particularly in long posterior spinal fusions with multiple screws.

**Objective.** The object of the study was to assess the benefits and drawbacks of tapping the pilot hole for pedicular screws in AIS patients.

**Material and methods.** This is a prospective, randomised study, on homogenous group of patients with AIS. 60 patients with moderate curves (40–85 degrees), operated between 2019 and 2022 were recruited to the stud. Two groups were formed; first, 30 patients having pedicle screws inserted without prior tapping, second, 30 patients had pillow hole tapped before each screw insertion. The tapping was done with 1mm smaller tap than planned screw. Screw accuracy was assessed according to Gartzbein classification. Operation length, time of screws introduction, estimated blood loss (EBL), perioperative complications were collected.

**Results.** The groups were similar in terms of curve magnitude, age, length of construct, number of screws and screw density. The analysis of pedicular screw accuracy did not show significant difference between groups in grades 0 and 1 (83.5% in no tap, 86% in tap group) as well as in grade 2 (10.5%, 11% respectively), however significantly less malpositions of grade 3 were noted in tap group (6% vs 3%,  $p = 0.03$ ). The average operation time was 18min longer in tap group than in no tap (257 vs 239min respectively,  $p = 0.24$ ), average time of all screws insertion took 71min in no tap group, 79.8 min.  $p = 0.09$ , time necessary to position 1 screw in no tap group was 3.7min vs 4.1 min. in tap group,  $p$  value 0.1. EBL was greater in tap group – 693 ml vs 535 ml in no tap,  $p = 0.009$ .

**Conclusions.** Taping of pedicular canal prior to pedicle screw insertion provides better screw accuracy, but leads to increased blood loss and slightly prolongs surgery.