

Following the training, the first independent performance of a central venous catheter (CVC) insertion using a manikin was video-recorded and scored by independent video assessors using binary checklists" Krautter et al (2015).

Reference:

Krautter, M., Dittrich, R., Safi, A., Krautter, J., Maatouk, I., Moeltner, A., Herzog, W. and Nikendei, C. (2015) Peyton's four-step approach: differential effects of single instructional steps on procedural and memory performance - a clarification study. *Advances in Medical Education and Practice*. 6, p.399-406. eCollection 2015.

Peyton's step 3 is the most crucial part in central line insertion training [#ivteam](http://ctt.ec/agYb2+@ivteam)

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Abstract:

BACKGROUND: Although Peyton's four-step approach is a widely used method for skills-lab training in undergraduate medical education and has been shown to be more effective than standard instruction, it is unclear whether its superiority can be attributed to a specific single step.

PURPOSE: We conducted a randomized controlled trial to investigate the differential learning outcomes of the separate steps of Peyton's four-step approach.

METHODS: Volunteer medical students were randomly assigned to four different groups. Step-1 group received Peyton's Step 1, Step-2 group received Peyton's Steps 1 and 2, Step-3 group received Peyton's Steps 1, 2, and 3, and Step-3mod group received Peyton's Steps 1 and 2, followed by a repetition of Step 2. Following the training, the first independent performance of a central venous catheter (CVC) insertion using a manikin was video-recorded and scored by independent video assessors using binary checklists. The day after the training, memory performance during delayed recall was assessed with an incidental free recall test.

RESULTS: A total of 97 participants agreed to participate in the trial. There were no statistically significant group differences with regard to age, sex, completed education in a medical profession, completed medical clerkships, preliminary memory tests, or self-efficacy ratings. Regarding checklist ratings, Step-2 group showed a superior first independent

performance of CVC placement compared to Step-1 group ($P < 0.001$), and Step-3 group showed a superior performance to Step-2 group ($P < 0.009$), while Step-2 group and Step-3mod group did not differ ($P = 0.055$). The findings were similar in the incidental free recall test.

CONCLUSION: Our study identified Peyton's Step 3 as being the most crucial part within Peyton's four-step approach, contributing significantly more to learning success than the previous steps and reaching beyond the benefit of a mere repetition of skills demonstration.

Full Text