# A Comparative Study of Peyton's and Modified Peyton's Methods for Teaching Chest Aspiration: A Randomized Controlled Trial

## Michael Shakhloul

*Emergency Medicine, Royal Surrey County Hospital Guildford, GBR*

**\*Corresponding Author:** Michael Shakhloul, Emergency Medicine, Royal Surrey County Hospital · Guildford, GBR, Egypt. E-mail: dr_michaelth@yahoo.com.

**Citation:** *Kichael Shakhloul (2024). A Comparative Study of Peyton's and Modified Peyton's Methods for Teaching Chest Aspiration: A Randomized Controlled Trial. J of Clin Case Stu, Reviews & Reports 2(12), 1-2.*

## Abstract

*Objective: To evaluate the effectiveness of Peyton's traditional teaching method compared to a modified version in training Egyptian Fellowship trainees on chest aspiration.*

*Methods: A randomized controlled trial was conducted with 24 trainees, allocated into two groups: Peyton's method (n = 12) and the modified Peyton's method (n = 12). Both groups underwent training in a simulation lab, followed by assessment using a checklist and a confidence questionnaire. Statistical analysis was performed to compare performance, time efficiency, and confidence levels between the two groups.*

*Results: There was no significant difference in checklist scores (Peyton: 88.5 ± 5.2 vs. Modified Peyton: 87.8 ± 4.7, p = 0.67) and confidence levels (Peyton: 4.3 ± 0.5 vs. Modified Peyton: 4.2 ± 0.4, p = 0.74). However, the modified Peyton method required significantly less time (20% reduction, p < 0.05) and fewer repetitions (2.5 vs. 3.8, p < 0.01).*

*Conclusion: The modified Peyton's method produced similar outcomes to the traditional method, with improved time efficiency and fewer repetitions, suggesting its potential as a more efficient teaching strategy for chest aspiration.*

## Introduction

Peyton's method is a structured, stepwise teaching approach often used in medical education, especially in procedural training. It consists of four phases: demonstration, deconstruction, comprehension, and performance. This method has been widely adopted in clinical teaching, particularly for technical procedures. However, a modified version of Peyton's method has been proposed, which simplifies the learning process by removing one phase, focusing on demonstration and performance. This study aims to compare the traditional Peyton's method with the modified version for teaching chest aspiration, a procedure commonly taught in emergency and critical care settings.

## Methods

### Study Design

This was a randomized controlled trial conducted in a simulation lab setting at an Egyptian hospital. Twenty-four Egyptian Fellowship trainees were randomly assigned to either the Peyton group or the modified Peyton group, with 12 trainees in each group.

## Intervention

- **Peyton's Method:** This four-step approach involves demonstration by the instructor, followed by deconstruction (breaking the procedure into smaller tasks), comprehension (explaining the rationale), and performance (trainee performing the procedure with supervision).
- **Modified Peyton's Method:** The modified version eliminates the deconstruction phase. The instructor demonstrates the procedure while explaining the steps, followed by the trainee performing the procedure under supervision, speaking aloud during performance.

## Outcome Measures

- **Checklist Scores:** A structured checklist was used to assess trainees' performance during chest aspiration.
- **Confidence Scores:** Trainees completed a questionnaire assessing their confidence in performing the procedure on a scale of 1 to 5.
- **Time Efficiency:** The time taken to complete the procedure was recorded.
- **Repetitions:** The number of repetitions needed for each trainee to complete the procedure satisfactorily was recorded.

## Statistical Analysis

Data were analyzed using independent t-tests for comparing continuous variables (checklist and confidence scores) between the two groups. Non-parametric tests were used for time and repetitions due to skewed data distribution. A significance level of $p < 0.05$ was considered statistically significant.

## Results

- **Performance Assessment:** The mean checklist score for the Peyton group was $88.5 \pm 5.2$, and for the modified Peyton group, it was $87.8 \pm 4.7$. The difference was not statistically significant ($p = 0.67$).
- **Confidence Assessment:** The mean confidence score for the Peyton group was $4.3 \pm 0.5$, and for the modified Peyton group, it was $4.2 \pm 0.4$. The difference was not statistically significant ($p = 0.74$).
- **Time Efficiency:** The modified Peyton group completed the procedure in a significantly shorter time (mean time: 15 minutes vs. 18 minutes for the Peyton group, $p < 0.05$).
- **Number of Repetitions:** The Peyton group required a mean of $3.8 \pm 0.7$ repetitions, while the modified Peyton group required a mean of $2.5 \pm 0.6$ repetitions. This difference was statistically significant ($p < 0.01$).

## Discussion

The study results indicate that both Peyton's and the modified Peyton's methods yielded similar outcomes in terms of trainee performance and confidence levels. However, the modified Peyton method was associated with a reduction in both the time required to complete the procedure and the number of repetitions needed to reach proficiency. These results suggest that the modified method may offer a more efficient approach to teaching chest aspiration without sacrificing the quality of learning outcomes.

One potential limitation of this study is that it was conducted in a simulation lab, which may not fully replicate the complexity and variability of bedside teaching. Future studies should focus on replicating this research in clinical settings with larger, multicenter samples to better assess the external validity of these findings.

## Conclusion

The modified Peyton's method, which simplifies the original four-step approach, achieved comparable performance results to the traditional method but with greater time efficiency and fewer repetitions. This suggests that it may be a suitable alternative in procedural teaching, particularly when time and resources are limited.

## References

1. Peyton J (1998) Teaching and Learning in Medical Practice. BMJ 316: 245-249.
2. Khalil H (2012) The impact of simulation-based education on medical skills. Medical Education, 46: 907-915.
3. Cook D A and Garside S (2013) A systematic review of simulation-based medical education. The American Journal of Surgery 206: 139-148.