

Hip Injection Skill Trainer: A Prototype To Teach Ultrasound-Guided Hip Injections

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The Problem:

- The need to increase psychomotor skills with US-guided hip injections

The Idea:

- A reusable, cost-effective skill trainer that provides a reproducible environment
- Trainer has a target area with electronic feedback
- Develop guidelines for use in resident and medical student education

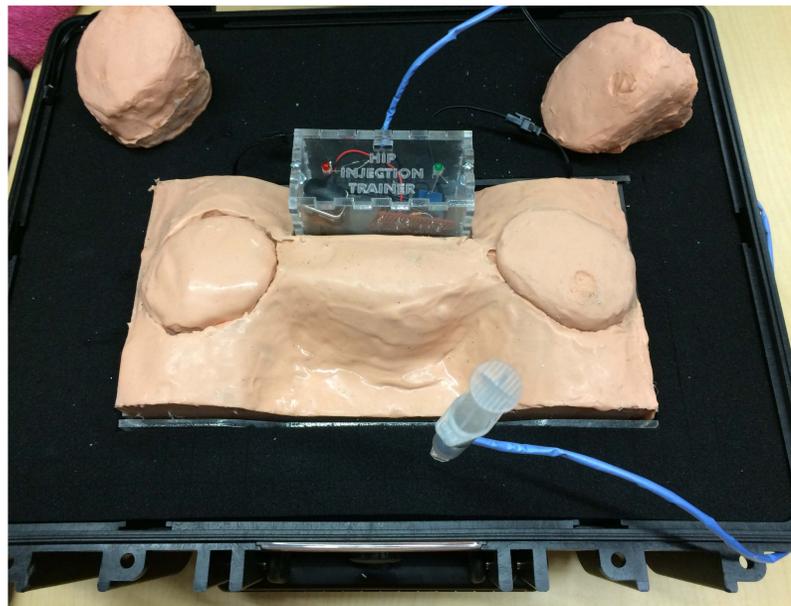
Elements of

Training/Design:

- Ultrasound-guided hip injections
- Silicone to create medium that looks and feels like human issue
- Conductive textile signals target injection area
- Feedback created by pressing plunger on needle
- Constructed by UMN engineering students
- Funding awarded by UMN Department of Family Medicine and Community Health Discovery Fund
- This project is currently in progress.

Next Steps:

- Evaluation of the device will be done via expert survey using Qualtrics to rate the technical design and validity as a teaching tool.
- If the device is found acceptable by experts, its use will be implemented in resident and medical student training.
- Long term goal is to increase learner confidence and skill with a step-wise approach to successfully performing an ultrasound-guided hip injection using our hip injection skill trainer.
- An education curriculum has been developed to accompany the device.



Conclusion:

- Past curricula for ultrasound-guided injections using a cadaver resulted in procedural skill retention, acquisition of teaching skills, and decreased injection errors
- Our new curriculum incorporates each of these elements; we anticipate similar results.

Questions that remain:

- Will expert opinion accept this device as a valid trainer?
- Will learners deem this device to be helpful in improving injection technique?
- Will the device's realistic structure and feedback mechanism help with skill retention?
- How does the device compare to cadaver training?

Acknowledgments:

Rachael Brandt, Nathan Stob, Trevor Laughlin, Dan Sherman, Adam Choe, Marcos Molina

Compared to an actual ultrasound-guided hip injection, the anatomy of the skill trainer is:

Unrealistic	Slightly Realistic	Neither Realistic nor Unrealistic	Moderately Realistic	Very Realistic	Don't Know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Compared to an actual ultrasound-guided hip injection, the instrument handling on the skill trainer is:

Unrealistic	Slightly Realistic	Neither Realistic nor Unrealistic	Moderately Realistic	Very Realistic	Don't Know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate the degree of overall realism of the skill trainer (how it looks AND feels), compared to an ultrasound-guided hip injection.

Unrealistic	Slightly Realistic	Neither Realistic nor Unrealistic	Moderately Realistic	Very Realistic	Don't Know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate the degree of usefulness of the force feedback (sensation of feeling the tools on the target and in the task space) in the hip skill trainer in helping your performance.

Extremely useful	Moderately useful	Slightly useful	Neither useful nor useless	Slightly useless	Moderately useless	Extremely useless
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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