

Designing, Fabricating, and Documenting a Novel Methodology for Creating Hyper realistic Part-Task Trainers for Prosthetic Clinician Training

Integrating Lifecasting, Medical Imaging and Additive Manufacturing

A comprehensive guide to improving prosthetic clinician training through a novel methodology

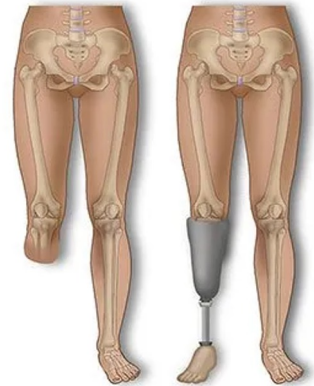
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Prosthetic clinician training is crucial for providing quality care to patients. However, current methods have limitations that can be addressed through the use of hyper-realistic part-task trainers. This can be achieved through the integration of lifecasting, medical imaging, and additive manufacturing.

Understanding the Need

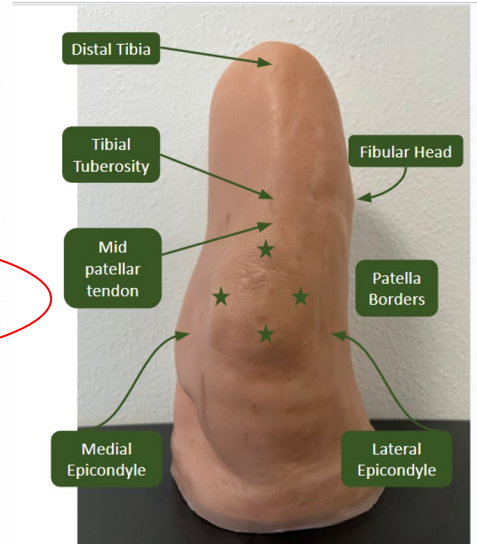
- 2 million amputees in U.S./growing (aging/veterans)
- Majority “below knee”
- Socket fit major consideration for successful rehabilitation
- Creating well-fitting socket requires palpation skills
- Limited access to patients/non-standardized

Below-Knee Amputation

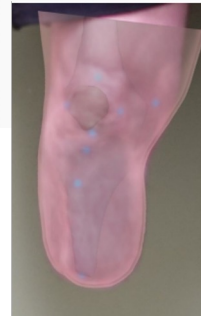
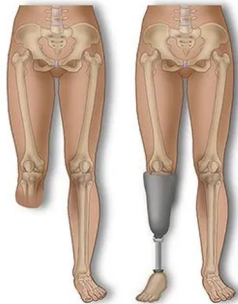


Current Methods and Their Limitations

- Current training methods for prosthetic clinicians have limitations that can be addressed through a novel methodology.
- The integration of lifecasting, medical imaging, and additive manufacturing can improve the effectiveness of training.
- A new methodology is needed to address the limitations of current methods.



Below-Knee Amputation

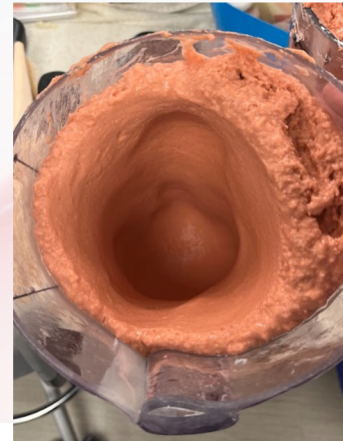


The Role of Lifecasting

- Lifecasting is a crucial component of the methodology, allowing for the creation of hyper-realistic part-task trainers.
- Integrating lifecasting into the process has numerous benefits, including increased accuracy and realism.



Provide accurate reproduction of actual amputee residual limb including bony structures



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The Role of Additive Manufacturing

- Additive manufacturing is a crucial component of the methodology, allowing for the creation of complex and detailed part-task trainers.
- Integrating additive manufacturing into the process has numerous benefits, including increased efficiency and cost-effectiveness.





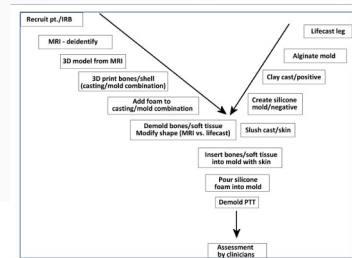
The Fabrication Process

- The fabrication process involves the use of lifecasting, medical imaging, and additive manufacturing to create hyper-realistic part-task trainers.
- Challenges may arise during the process, but they can be overcome through careful planning and problem-solving.



Importance of Documentation

- Documentation is crucial for the success of this methodology, as it allows for replication and improvement.
- Key elements to include in the documentation are outlined, such as materials and methods used.
- A case study of effective documentation in a related field can provide guidance for best practices.



Phases

Phase I

Acquire assets
Digital & Physical

Phase III

Assemble documents
Optimize for consumption
Highlight key benefits

Dec

Jan

Feb

March

April

May

June

July

Aug

Phase II

Fabricate
Obtain feedback
Document process