

Research summary

A scoping review of digital fabrication techniques applied to prosthetics and orthotics: Part 1 of 2- Prosthetics.



About

Around 0.5% of the global population requires prosthetic, orthotic, and rehabilitation services, with demand expected to double by 2050. However, access to these devices is limited, especially in low-income countries. Digital technologies, such as CAD, CAM, and additive manufacturing, offer potential solutions to improve accessibility and efficiency in prosthetic fabrication.



Highlights

Digital tools have streamlined prosthetic production by replacing manual processes. While these innovations could reduce labour and improve access, our research shows:

- A lack of large, long-term studies on these technologies.
- Minimal focus on training for clinicians and on device adjustment methods.
- Variability in workflows and materials, making conclusions difficult.

Despite commercial systems being available, evidence on their real-world effectiveness and use is limited, especially in low-income countries.

Conclusion

Research gaps, particularly in long-term evidence and training, hinder the widespread adoption of digital prosthetic technologies. Collaboration between researchers, clinicians, and industry is essential to support evidence-based decision-making and improve access to these innovations.



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