

Prosthetics: Progress, Possibility, and People

Katy Hodges

The Collegiate School at Florida State University Panama City

Abstract

Everything in prosthetics is highly engineered, from optimizing the aesthetic appearance to the function or material. With the focus on a particular aspect of the device, there is often a trade-off with other qualities particularly lacking. Passive prostheses, for example, prioritize appearance with a lack of functionality. With the focus on a particular aspect of the device, there is often a trade-off with other qualities particularly lacking. Passive prostheses, for example, prioritize appearance with a particular lack of functionality. These tradeoffs often influence depression in patients post amputation and are correlated with self-worth. Through evaluating the best fit prosthetic for the patient as well as the optimal time window, this research will help bridge the gap of patients' recovery process.

Objective & Methods

I collected data through evaluating previously conducted research studies and make connections that bring to light a new perspective. This research aims to evaluate and define prosthetic qualities and the reasons why a patient might dislike or discontinue usage of prostheses. This research can aid efforts to maximize the recovery of amputees and the quality of life post amputation. I chose my sources based on the date published, the credibility of the author, and the relevance of the research to my topic.



(How Has It Changed over Time?, 2025)

Timeline

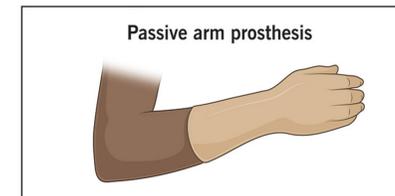
With the different types of prosthetics for patients to choose from, many researchers have evaluated the timelines of fittings in the way that they examine the rate and number of patients who are likely to discard their device in favor of comfort and functionality. The recommended window for the optimal fitting is 3-6 months, although this time period is prone to change with medical emergencies and unexpected delays.

Aid of Recovery

Furthermore, prosthetics have been proven to aid in the recovery and prevent depression in the way that they help patients mentally recover from amputations and return to their life. This can come in the form of more complex and technologically oriented prostheses or mechanical body powered prosthetics. Benefits of enhanced prosthetic mobility include self-esteem and a better quality of life (Avesahemad S. N. Husainy et al., 2024). Prosthetics give individuals hope and a sense of normalcy that goes beyond daily routines. Through evaluating the types of prosthetics, and therefore which fits the patient best, assigning the correct functionality of these devices is crucial.

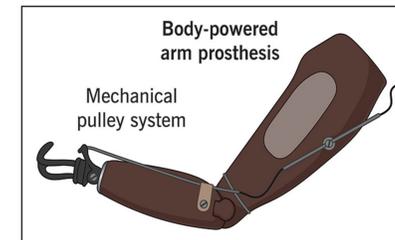
Patients are wary of trying new technologies that are unfamiliar or trading their comfortable fitting prosthetic for something new. This provides important insight into the consumer side of the prosthetic market, in the way that these new advances impact amputees and their quality of life. The skill developed to maneuver and adapt to a new way of life is a process that takes a considerable amount of time, and when faced with everyday struggles, patients were less likely to consider new advances in favor of the comfort of prosthetics they already learnt how to use.

Prosthetic arm



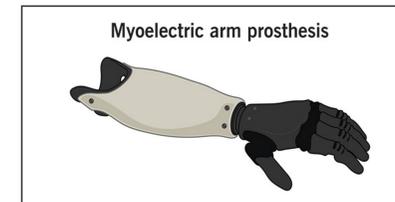
Passive arm prosthesis

Passive arm prosthetics provide a realistic rendering of a hand that can look nearly identical in terms of realism.



Body-powered arm prosthesis
Mechanical pulley system

Body powered prosthetics provide a low tech, mechanically powered prosthetic.



Myoelectric arm prosthesis

Myoelectric prosthetics provide a combination of technology and engineering to provide a functional prosthetic allowing a wide range of movement

Cleveland Clinic ©2024
(Cleveland Clinic, 2023)

Conclusion

There are many benefits of prosthetics, such as the improvement of mobility and quality of life, but the functionality of these devices ultimately comes down to the situation and circumstances in which they are used. The various uses of prosthetics vary greatly, such as military uses, recreational activities like sports, and daily activities such as walking. Future technologies being developed are greatly experimental and not entirely well researched although they provide promising directions such as the neural movements of limbs and the integration of reflexes into the prostheses. Through improving prosthetics with the patients in mind, a better future can be created for them that encourages positivity and improved quality of life.