Anforderungen an eine geeignete Prosthesentechnologie für ältere, dysvaskuläre Amputierte - Requirements of a suitable prosthesis technology for elderly, dysvascular amputees

Authors: M. McGrath[1], D. Moser[1], A. Baier[2]

[1]Blatchford Limited, Basingstoke UK

[2]Blatchford Deutschland, Kulmbach Germany

Published in: Orthopädie Technik 2019; 11: 42-46

Summary

An informative review was produced highlighting the most prevalent issues within the elderly amputee community. Evidence of the benefits gained from existing technologies (hydraulic ankles, elevated vacuum suspension and perforated liners) was collated and presented as a potential solution.

Method

Components: Hydraulic foot technology (namely Avalon)

Measurements: Review paper

Subjects: N/A

Data collection protocol: N/A

Analysis: A review of existing literature and technology in how to tackle current clinical challenges and user needs.

Results

Although there were many contributing factors, falling and soft tissue damage because of dysvascular issues were highlighted as the predominant risk factors within the elderly community of amputees. Prosthetic componentry was presented as an independent factor that would have a large effect on the risk of falling, with hydraulic ankles helping reduce the number of trips and falls by conforming to changeable terrain and increasing the minimum toe clearance during swing phase. The Avalon has been shown to reduce the amount of muscular effort during sit-to-stand by 33% and was seen to increase both ambulation and patient satisfaction. Elevated vacuum suspension was found to reduce movement at the residuum-socket interface, reducing tissue shear and increasing proprioception. The negative pressure produced by the vacuum improves tissue oxygenation in the residuum, and can promote wound healing, especially when combined with a perforated liner to aid with moisture wicking and temperature regulation.

Conclusion

Although falling and soft tissue damage pose challenges, prosthetic technology has proven methods of mitigating risk factors and, when using a combination of proven technologies, can not only improve short-term issues but also has beneficial implications long-term.

Products with Related Technology:

Avalon, Elan, Echelon, EchelonVAC