Transfemoral suspension systems: a comparison between common suction socket and Seal-In liner

Hossein Gholizadeh

Available at: https://works.bepress.com/hossein_gholizadeh/15/
Transfemoral suspension systems: a comparison between common suction socket and Seal-In liner

H. Gholizadeh; N. A. Abu Osman; A. Eshraghi; S. Ali,

Department of Biomedical Engineering, Faculty of Engineering, University of Malaya, Malaysia, 50603, Kuala Lumpur, Malaysia

Correspondence address:
Hossein Gholizadeh, (MEng.Sc) (Prosthetist-Orthotist)
Department of Biomedical Engineering, Faculty of Engineering, University of Malaya, 50603, Kuala Lumpur, Malaysia
Tel: (+603) 79674581
Fax: (+603) 79674579
Email: gholizadeh@um.edu.my
gholizadeh87@yahoo.com
Transfemoral suspension systems: a comparison between common suction socket and Seal-In liner

ABSTRACT:

INTRODUCTION: Choice of suspension system and socket fit have significant influence on patient’s comfort, mobility and satisfaction with prosthetic devices. The suspension system prevents rotation, translation and vertical movement of the prosthesis in relation to the residual limb. Poor suspension can have negative effects on rehabilitation and can affect the mobility level and comfort of person's with transtibial amputation. While this may also apply to individuals with transfemoral amputation, it has not yet been investigated. The objective of this study was to compare a seal-in liner with the common suction socket with regards to patient satisfaction and problems experienced with the prosthesis.

METHODOLOGY: Men (N=90) with traumatic transfemoral amputation who used both suspension systems participated in the study. Two questionnaires were completed by each subject to evaluate their satisfaction and problems experienced with the 2 suspension systems. Satisfaction and problems with the prosthetic suspension systems were analyzed in terms of fitting, donning and doffing, sitting, walking, stair negotiation, appearance, sweating, wounds, pain, irritation, pistoning, edema, smell, sound, and durability.

RESULTS: The study revealed that the respondents were more satisfied with a seal-in liner with regards to fitting, sitting, and donning and doffing. Overall satisfaction increased with the use of a seal-in liner compared with the suction socket (P<.05). However, satisfaction with the prosthesis showed no significant differences in terms of walking (flat and uneven surfaces), appearance, and stair negotiation. Furthermore, problems experienced differed significantly between the 2 suspension systems (P<.05). Sweating, wounds, pain, irritation, pistoning, edema, smell, and sound were less problematic with the use of a seal-in liner, whereas durability was significantly better with the suction socket.
CONCLUSIONS: The results of the survey suggest that satisfaction and problems with prosthetic suspension in persons with transfemoral amputation can be improved with a seal-in liner compared with the suction socket, provided that the durability of the liner is enhanced.
References:


