
Reference

Hoskins RD, Sutton EE, Kinor D, Schaeffer JM, Fatone S.

Prosthetic Design, Inc., Clayton, OH, USA

Using vacuum-assisted suspension to manage residual limb wounds in persons with transtibial amputation: a case series

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Products

Vacuum-assisted socket system* (VASS)

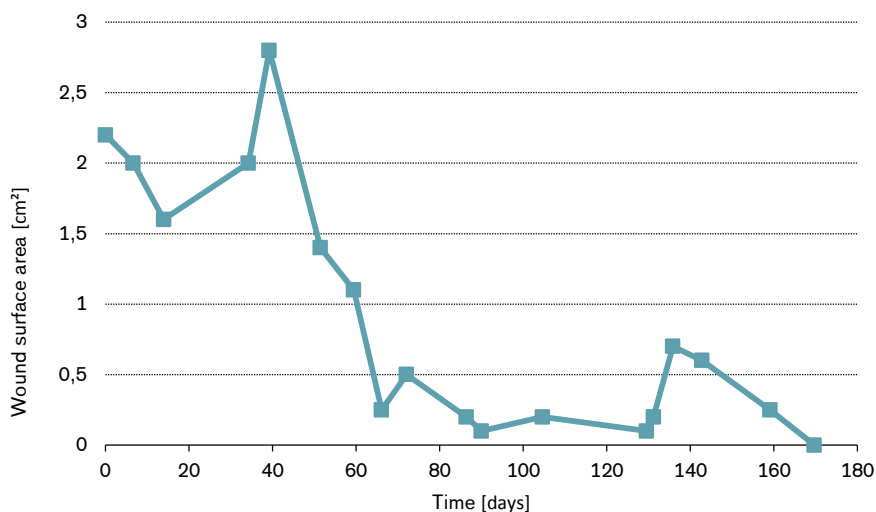
* Harmony, Otto Bock (5 subjects); LimbLogic VS, Willow Wood (1 subject)

Major Findings

With VASS:

- **Wound closure is obtained while using the prosthesis**
- **Allows for prosthetic fitting and walking despite the presence of an open residual limb wound with large surface area**

Wound healing occurs while using VASS



Wound healing process shown for one representative subject. Subject was instructed to wear prosthesis as much as possible given any pain they may experience and not to limit their activities.

Population

Subjects:	6 transtibial amputees
Previous socket system:	not reported
Amputation causes:	67% ulcer, 16.5% ischemia, 16.5% trauma
Mean age:	66.5 ± 5.5 yrs
Mean time since amputation:	8.0 ± 9.1 yrs
MFCL:	not reported

Study Design

Case series:



Results

Body Function				Activity			Participation	Others	
Wound Healing	Limb Volume Fluctuation	Pain	Comfort, Limb Health	Level Walking	Balance	Activity, Mobility, ADLs	Preference, Satisfaction, QoL	Pistoning	Pressure Measurement

Category	Outcomes	Results for VASS	Sig.*
Wound Healing	Documentation of wound surface area using digital photographs	Wound closure was achieved for all 6 subjects within an average time of 177 ± 113 days while using the VASS. Variability in time to heal is based on heterogeneity in health conditions, wound severity, and compliance in terms of wound care and prosthesis use.	n.a.

* no difference (0), positive trend (+), negative trend (-), significant (++/--), not applicable (n.a.)

Author's Conclusion

"We observed closure of residual limb wounds in six subjects with unilateral transtibial amputation while wearing VAS sockets. The results of this case series contribute to the growing body of evidence that suggests that VASS prostheses may be used while managing residual limb wounds in persons with transtibial amputation. The results suggest that a well-fitting socket with VASS in compliant individuals does not preclude wound healing and that wound closure is possible without limiting or halting activities." (Hoskins et al. 2014)

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