

Osseointegrated Prostheses for the Rehabilitation of Amputees: Soft-Tissue Management and Thighplasty

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In patients with transfemoral amputations who have difficulty tolerating conventional socket-based prostheses, osseointegrated implants have enabled increased prosthetic use, improved patient satisfaction, and shown promising functional outcomes. Although osseointegrated implants effectively eliminate the soft-tissue challenges associated with socket-based prostheses, the presence of a permanent, percutaneous implant is associated with various other soft-tissue challenges that have yet to be fully defined. In patients with a transfemoral amputation and redundant soft tissue who are undergoing osseointegrated surgery, thighplasty is performed to globally reduce excess skin and fat, tighten the soft-tissue envelope, and improve the contour of the residual limb.

Although much of the literature on osseointegrated implants focuses on infectious complications, recent studies have reported revision surgery rates ranging from 18% to 36% because of redundant soft tissue after osseointegrated surgery. Thighplasty at the time of osseointegrated surgery not only reduces the risk of revision surgery but also may decrease infectious complications by reducing relative motion and inflammation at the skin-implant interface.