

Changing Perceptions of Transtibial Amputation



Just last week, while talking with my patient in the preoperative holding area before I undertook repair of a large tibial cyst with vascularized bone graft, he said, in a matter-of-fact way, that if the procedure failed he could “get one of those blades” and go back to work using the prosthesis. His comment took me by surprise, while it reinforced a sentiment expressed by another patient under contrasting circumstances just about a week earlier. The patients were clinically very different. The first was a smoker in his mid-forties suffering with distal tibial avascular necrosis with anterior cortical fracture. The second was a patient in his

early sixties with poorly controlled diabetes who had peripheral neuropathy and calcaneal osteomyelitis; he had already undergone wound debridement and partial calcanectomy. Both patients alluded to the option of below-the-knee amputation followed by fitting with a prosthesis called the *blade*, should the planned surgery that we were discussing fail.

It seems to me that the notoriety of Oscar Pistorius, the acclaimed South African sprinter who recently made it to the 400-meter final at the London Olympics, has influenced my patients' attitudes toward the possibility of a major lower extremity amputation. Pistorius has been referred to as the *Blade Runner* because he is a bilateral transtibial amputee who competes at the highest level using a pair of Össur Flex-Foot Cheetah® prostheses (Össur Americas, Foothill Ranch, CA). This particular device, after much scientific scrutiny and use in Paralympics competition, has been shown to provide no competitive advantage when compared with the limbs of able-bodied athletes (1). In fact, the prosthesis, which is a passive spring designed for running, neither stores positive power nor absorbs negative power, and it falls short of the intact human extremity in terms of power generation and energy use (2). As such, Pistorius' athletic success stems from his personal strength, endurance, and determination, like any other elite athlete. His success, however, has influenced people the world over, including some of my patients faced with the possibility of needing a transtibial amputation. Of course, the success of any prosthesis depends not only on the individual patient's acceptance and skillful use of the device but also on the expertise of innovative engineers, fabricators, and prosthetists who design, produce, and fit the artificial body part. Hopefully, ongoing success stories like that of Oscar Pistorius will continue to motivate people with lower extremity amputations to participate in exercise and athletic activities on a broad scale, which will continue to improve the health and wellbeing of this patient population.

D. Scot Malay, DPM, MSCE, FAFAS
Editor
The Journal of Foot & Ankle Surgery®

References

1. Brüggemann G-P, Arampatzis A, Emrich F, Potthast W. Biomechanics of double transtibial amputee sprinting using dedicated sprinting prostheses. *Sports Technol* 1(4-5):220-227, 2008.
2. Grabowski AM, McGowan CP, McDermott WJ, Beale MT, Kram R, Herr HM. Running-specific prostheses limit ground-force during sprinting. *Biol Lett* 6:201-204, 2010.