Update on Prosthetic and Orthotics for Amputation and Reconstruction: Limb Salvage

Dr. Vigna stresses that decisions about reconstructive limb salvage versus amputation are crucial

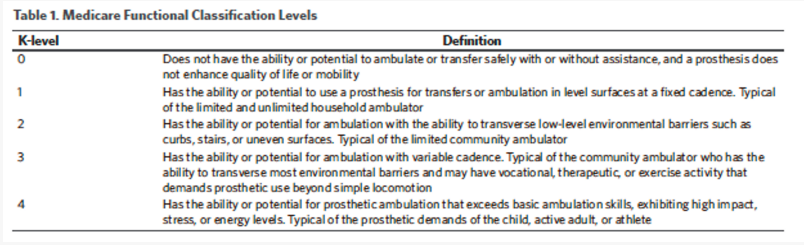

Table 1. Medicare Functional Classification Levels

K-level	Definition
0	Does not have the ability or potential to ambulate or transfer safely with or without assistance, and a prosthesis does not enhance quality of life or mobility
1	Has the ability or potential to use a prosthesis for transfers or ambulation in level surfaces at a fixed cadence. Typical of the limited and unlimited household ambulator
2	Has the ability or potential for ambulation with the ability to transverse low-level environmental barriers such as curbs, stairs, or uneven surfaces. Typical of the limited community ambulator
3	Has the ability or potential for ambulation with variable cadence. Typical of the community ambulator who has the ability to transverse most environmental barriers and may have vocational, therapeutic, or exercise activity that demands prosthetic use beyond simple locomotion
4	Has the ability or potential for prosthetic ambulation that exceeds basic ambulation skills, exhibiting high impact, stress, or energy levels. Typical of the prosthetic demands of the child, active adult, or athlete

Table 1: Medicare Functional Classification Levels

SANTA BARBARA , CA, UNITED STATES, February 18, 2025 /EINPresswire.com/ -- Dr. Greg Vigna, personal injury attorney, Board-Certified in Physical Medicine and Rehabilitation, states, “This article is important because it goes directly to the important decisions related to reconstructive limb salvage procedures versus amputation at the desired level to maintain as much residual mobility as possible.”

> “Ambulators may benefit from myoelectric prosthetic devices, as there is improved stability with gait, reduced risk of falls, and improved energy efficiencies with myoelectrics.”
>
> *Greg Vigna, MD, JD*

Read Dr. Christopher Crowe’s article: “Prosthetic and orthotic options for lower extremity amputation and reconstruction” published in Plast Asthet Res 2019; 6:4: https://www.oaepublish.com/articles/2347-9264.2018.70

Dr. Vigna states, “The article describes the flawed system of determining medical necessity for lower extremity prosthetics based on the Medicare Functional Classification Levels. My position as a Board-Certified Physical Medicine and Rehabilitation physician and Life Care Planner is that doctors should be the ones who decide on the medical necessity of advanced myoelectric prosthetics for the injured. The K level is somewhat relevant in my decision that relates to needs, but limited community ambulators and some household ambulators may benefit from myoelectric prosthetic devices, as there is improved stability with gait, reduced risk of falls, and improved energy efficiencies with myoelectrics.” (See Table 1)

What are the options for lower extremity amputees? (See Table 2)

Greg Vigna, MD, JD, is a national malpractice attorney and catastrophic injury attorney. He is available for legal consultation. The Vigna Law Group, along with Ben C. Martin, Esq., of the Ben Martin Law Group, a Dallas, Texas national pharmaceutical injury law firm, jointly prosecute

personal injury and pharmaceutical injury cases on a non-exclusive basis.

Greg Vigna, MD, JD
Vigna Law Group
email us here
+1 817 809 9023
Visit us on social media:
Facebook
X
LinkedIn

Table 2. Surgical and prosthetic considerations by amputation level

	Surgical considerations	Prosthetic and orthotic considerations
Transmetatarsal amputation	Exact location of transection variable Closure via plantar flap or fishmouth incision Consider Achilles lengthening to reduce the risk of equinovarus deformity	Partial foot prosthesis with toe filler Carbon-fiber inlay or spring to provide additional force during terminal stance
Midfoot amputation (e.g., Lisfranc and Chopart)	Level of amputation dependent on joint space transected Useful when midfoot joint instability is present Greater propensity for equinovarus deformity and may require a balancing procedure	Similar prosthetic considerations to transmetatarsal amputation Consider contralateral shoe lift if orthotic causes limb length discrepancy
Syme amputation	Provides greater lever arm as compared to transtibial amputation Proximal heel pad used for coverage Partial weight bearing may proceed in early postoperative period	Limb length discrepancy almost always present Device must accommodate bulbous distal limb Prosthetic foot must offload compressive force on residual limb
Transtibial amputation	Location of transection important for both lever arm, prosthetic accomodation, and soft tissue coverage Myodesis is preferable if bone quality adequate Traction neurectomies should be performed in such a way to prevent neuroma formation	Consider componentry of prosthetic prescription individually Ankle joint axis should be chosen based on patient's level of functionality
Knee disarticulation	Generally preferable compared to transfemoral amputation Gastrocnemius muscle belly may be used to pad distal end Femoral epiphysis may be left intact in children to allow for growth	Choice of liner important to accommodate bulbous residual limb Position of prosthetic knee lies distal to contralateral knee, necessitating shortening of lower leg prosthesis
Transfemoral amputation	Soft-tissue envelope generally adequate Ideally transection occurs no more than 7 cm proximal to knee joint Preservation and anchoring of adductor magnus improves position of femur	Socket narrow in mediolateral dimension and incorporate ischium to promote femoral adduction Choice of prosthetic joints highly dependent on patient's ambulatory status

Table 2: Surgical and Prosthetic Considerations by Amputation Level