

(Place on your letterhead)

Date:

Recipient's Address:

Regarding

Patient Name:

Date of Birth:

Recipient's Name:

(Patient's Name) is a (age) year-old man/woman with a (level of amputation) amputation. (Additional Medical History)

(Patient's Name) is a K3 level ambulator as he/she is capable of ambulating at variable cadence and navigating uneven terrain and obstacles within his/her community and has (vocational, therapeutic, and/or exercise activity) that demands prosthetic utilization beyond simple locomotion. (Patient Name) is employed as a (occupation). As a condition of his/her occupation, (Patient Name) is required to (description of job activities that require the use of Kinnex [ambulation on slopes/ramps/hills/uneven terrain, long periods of standing, squatting, extended periods of sitting. (Patient's Name) also enjoys (hobbies/other activities). (Discuss patient's vocational and recreational lifestyle and how they relate to the function of Kinterra)

(Patient's Name) has been fit with a prosthesis that utilizes the Freedom Innovations Kinnex™ Ankle/Foot System, in order to accommodate the demands of his/her active lifestyle. Kinnex™ utilizes one L code shown below:

L 5973: Endoskeletal Ankle Foot System, Microprocessor Controlled Feature, Dorsiflexion And/Or Plantar Flexion Control, Includes Power Source

Freedom Innovations Kinnex™ Ankle/Foot System Justification

Microprocessor-controlled ankles have been in the United States since the 1990's and have been assigned a Medicare code since 2009. The benefits of microprocessor-controlled ankle/feet have become very well known. Microprocessor-controlled ankle/feet have scientific based studies to support their benefits, these include:

- Increased toe clearance and reduced likelihood of catching an unseen obstacle which may result in a fall and injury (Johnson et al. 2014, Rosenblatt et al. 2014)
- Reduction of soft tissue loading and pressure during walking, especially on slopes, uneven terrain, and stairs which may reduce the likelihood of skin breakdown and ulceration (Portnoy et al. 2012, Wolf et al. 2009)
- Reduction of braking forces and the perception of having "to climb over the foot", resulting in increased self-selected walking speed (DeAsha et al. 2013a, 2013b and 2014)
- More symmetrical movement patterns, reduced compensatory movements and residual limb loading during slope ambulation which may result in lower incidences of trunk and contralateral limb injury and overuse syndrome (Fradet et al. 2010, Darter et al. 2013)
- More symmetrical movement patterns, reduced compensatory movements and residual limb loading during stair ambulation which may result in safer ambulation and decrease falls (Alimusaj et al. 2009)

Specifically, the microprocessor-controlled ankle/foot I am recommending for this patient, Kinnex™, provides significant benefits for **him/her**. Amputees are required, at a minimum, to navigate community ramps, sloped yards and driveways and generally irregular terrains. While capable of ambulating in these environments, **(Patient Name)** reports instability and residual limb discomfort while **(list patient activities and environments traversed)**. The use of Kinnex™ would significantly improve **(Patient Name's)** function and reduces pain in the remaining limb while traversing these environments.

Kinnex™ combines benefits of a dynamic energy returning carbon fiber foot with the benefits of a microprocessor controlled ankle to improve stability on all surfaces. The ankle motion allows our patient to ambulate over varied terrains by adapting the ankle position to match the underlying gradient. The energy storing carbon fiber foot and microprocessor controlled hydraulic ankle unit provide dampening at heel strike followed by adaptation to the ground slope. This in turn allows our patient to reach foot flat quickly, providing increased knee stability and giving the amputee increased confidence while ambulating.

Kinnex™ provides 30 degrees of ankle range of motion which provides great benefit over a non-microprocessor controlled ankle, or standard carbon fiber energy storing prosthetic foot for users frequently walking on uneven terrain, ramps and slopes. The 30 degrees added range of motion reduces forces within the socket which may prevent injury to the residual limb as well as reduce posterior force moments which can destabilize the knee during slope descent. Socket pressures are reduced and improved while standing on slopes and while sitting down. While sitting, the ankle plantar flexes, which reduces the pressure on the anterior distal portion of the amputee's residual limb, providing greater comfort and preventing skin and liner breakdown. Dorsiflexion is important to prevent tripping. By maintaining dorsiflexion during swing phase, Kinnex™ prevents the catching of the toe on uneven surfaces such as carpet, door thresholds, grass, uneven sidewalks or wooden plank walkways, allowing the patient to have more safety and be more confident when walking on such surfaces. The additional flexibility also allows the amputee to safely squat and remain in a crouched position, increasing balance without creating uncomfortable forces inside the socket.

This ankle/foot system also incorporates a dynamic lock feature. Anytime the user has 20% of his or her weight on the ankle, and the ankle has reached the dorsiflexion stop angle, the ankle will dynamically lock, preventing plantarflexion and dorsiflexion in order to provide optimal support. The dynamic lock will remain engaged until the ankle has less than 20% of the user weight applied. This sophisticated dynamic lock feature will provide them with a firm foundation when standing in place, and will adapt to changes as weight is shifted, allowing the prosthetic user to feel grounded. Additionally, Kinnex™ dorsiflexes when the patient is sitting, permitting the sole of the foot to rest squarely on the ground while being placed underneath the chair the patient is sitting in, decreasing socket pressures on the residual limb. This feature also permits the patient to equally load both feet when going from a sit to stand position and further reduces chronic overuse syndromes affecting the patient's sound side (knee/ankle/foot) and the reliance on their arms to support themselves as they stand. The 20 degrees of plantarflexion also allows the wearer to planter flex in a natural standing motion that reduces socket pressure as they stand.

An additional safety feature provided with Kinnex™ is the manual lock. The manual lock allows users to quickly and easily lock the ankle as needed for activities such as driving, climbing a ladder or standing in one position for an extended period of time. When activated this feature will maintain the foot in a locked position until disengaged, allowing the user to be secure during special activities.

In conclusion, I recommend that **(Patient name)** use Freedom Innovations Kinnex™ Ankle/Foot System as it is a microprocessor controlled ankle/foot system with dorsiflexion and planter flexion control (L5973). The active range of motion of the ankle provides additional stability and support on uneven surfaces, declines and inclines and is ideal for sitting and standing. **(Patient Name)** requires the use of this prosthetic foot to increase mobility and decrease discomfort and instability while **(patient activities)**.

Thank you for your immediate attention to this request. If you have any further questions, please feel free to call me to discuss.

Sincerely,

Clinician Name

Contact Info

References:

1. Rosenblatt NJ, Bauer A, Rotter D, Grabiner MD. Active dorsiflexing prostheses may reduce trip-related fall risk in people with transtibial amputation *J Rehabil Res Dev* 2014; 51(8): 1229-1242.
2. Portnoy S, Kristal A, Gefen A, Siev-Ner I. Outdoor dynamic subject-specific evaluation of internal stresses in the residual limb: Hydraulic energy-stored prosthetic foot compared to conventional energy-stored feet. *Gait Posture* 2012; 35:121-125.
3. De Asha AR, Johnson L, Munjal R, Kulkarni J, Buckley JG. Attenuation of centre-of-pressure trajectory fluctuations under the prosthetic foot when using an articulating hydraulic ankle attachment compared to fixed attachment. *Clin Biomech* 2013;28: 218-224.
4. Fradet L, Alimusaj M, Braatz F, Wolf SI. Biomechanical analysis of ramp ambulation of transtibial amputees with an adaptive ankle system. *Gait Posture* 2010; 32: 191- 198.
5. Alimusaj M, Fradet L, Braatz F, Gerner HJ, Wolf SJ. Kinematics and kinetics with an adaptive ankle foot system during stair ambulation of transtibial amputees. *Gait Posture* 2009; 30: 356-363.