L-Code
L5673

Description
ADDON TO LOWER EXTREMITY, BELOW KNEE/ABOVE KNEE, CUSTOM FABRICATED FROM EXISTING MOLD OR PREFABRICATED, SOCKET INSERT, SILICONE GEL, ELASTOMERIC OR EQUAL, FOR USE WITH LOCKING MECHANISM.

Justification
Working in conjunction with a Locking mechanism (L5671) this is a primary means to holding the prosthesis to the limb. Suspension of the prosthesis to the limb is critical to maintain fit, comfort and function of an artificial limb. This liner is worn directly against the skin and dramatically reduces shear forces created by socket pistoning. Suspension is achieved by the inherent suction capabilities of a silicone material against skin and a shuttle lock mechanism at the distal end of both liner and socket. The silicone liner is used to provide suspension. It may be used with a hard socket or with a soft, lined socket depending on the amputee's needs. (atlas). This system has been well described in the literature (Kapp, Cluitmans, Edwards) and research has shown improved patient satisfaction and easier donning than with other suspension systems (Gholizadeh). Gel liners are used to reduce shear on the skin or limb. They are often used with skin conditions and grafts, and they also protect the limb during high-impact activities. (Fergason)

References


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L-Code
L5624

Description
ADDITION TO LOWER EXTREMITY, TEST SOCKET, ABOVE KNEE.

Justification
Use of a test socket (also known as: Check Socket or Diagnostic Socket) has been used since 1973 (Hammontree/Snelson). It has become a standard of practice for determination of appropriate fit and function of a prosthetic socket (Trower 2006). The use of these sockets (typically a clear thermoplastic) allows the practitioner to actually “see” the areas of excessive pressure in the absence of other diagnostic techniques, and helps to assure the proper, long term disbursement of forces within a socket as it applies pressure during use to the residual limb. (Staats 1985). “The fundamental principals of total contact, uniform pressure distribution, elimination of shear stress and focal pressures, and restoration of correct limb length have been known for a long time”. (Trower) The check socket allows for a determination of proper pressure distribution and can help to avoid skin problems such as Verrucous Hyperplasia, which is associated with lack of prosthesis contact. (Levy) Test sockets are necessary to evaluate socket fit and ensure a safe, comfortable socket fit. A clear test socket allows the prosthetist to evaluate and adjust the socket fit to provide maximum comfort and stability for the patient. A proper fitting socket reduces the risk of limb complications secondary to excessive motion or improper force distribution in the socket.

References


Staats, TB. “Advanced Prosthetic Techniques for Below the Knee Amputations.” Orthopedics, 1985 Feb:8(2)249-58


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L5624 References (cont.)


L-Code
L5671

Description
ADDITION TO LOWER EXTREMITY, BELOW KNEE / ABOVE KNEE SUSPENSION LOCKING MECHANISM (SHUTTLE, LANYARD OR EQUAL), EXCLUDES SOCKET INSERT.

Justification
Working in conjunction with a socket insert, silicone gel, elastomeric or equal (L5673) this is a primary means to holding the prosthesis to the limb. Suspension of the prosthesis to the limb is critical to maintain fit, comfort and function of an artificial limb. This liner is worn directly against the skin and dramatically reduces shear forces created by socket pistoning. Suspension is achieved by the inherent suction capabilities of a silicone material against skin and a shuttle lock mechanism at the distal end of both liner and socket. The silicone liner is used to provide suspension. It may be used with a hard socket or with a soft, lined socket depending on the amputee's needs. (atlas). This system has been well described in the literature (Kapp, Cluitmans, Edwards, Nieveen) and research has shown improved patient satisfaction and easier donning than with other suspension systems (Gholizadeh). The suspension system is critical to further reduce the movement between the socket and residual limb (Collins)

References


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L-Code
L5910

Description
ADDITION, ENDO Skeletal System, BELOW KNEE, ALIGNABLE SYSTEM.

Justification
The use of an alignable system is critical for the continued use and function with a lower extremity prosthetic device. Multiple studies have shown that the alignment of a prosthetic device (the relationship between the foot and the socket) can effect function, comfort, energy expenditure skin health and quality as well as the ability to ambulate (Schmalz, Blumentritt, Kelly, Nelson, Boone, Hannah and Collins). Additional studies have shown that the alignment can change over time as the patient improves in strength, accommodates to the prosthesis (whether it is above or below the knee) and improves in confidence (Hafner, Schmalz, Boone, Sjodahl, Gailey), requiring a change in the alignment allowing for continued protection of the skin, comfort and function.

References


L-Code
L5986

Description
ALL LOWER EXTREMITY PROSTHESES, MULTI-AXIAL ROTATION UNIT ('MCP' OR EQUAL).

Justification
A multiaxial rotation unit is utilized between the socket (human interface) and the foot. It has been shown to decrease the initial vertical ground reaction force and increases prosthetic foot compliance to uneven surfaces and have “significant measurable and perceptible effects on gait” (Coleman) Motion is allow in all three planes with this rotation unit in the form of inversion, eversion, and transverse rotation. Transverse rotation is important in that it reduces shear forces transmitted to the residual limb and is an alternative to a rotation unit. (Kapp). The incorporation of a transverse rotation mechanism contributes to both the comfort of the amputee and the improvement of function and synchrony in walking. (Levens). In a sound limb, rotations occurring in lower extremity appear to be absorbed in the articulations of the foot and their related ligamentous structures as well as the knees and hips. (Levens) Further, deviations from normal transverse rotations will, to varying degrees, modify the synchrony and rhythm of walking and increase discomfort to the patient. A multiaxial rotation unit mimics natural foot and ankle motion in an attempt to minimize these deviations.

References

Peng, Jia Xiaohong Li Xiaobing Dou, and Zhang Ming. The influence of dynamic trans-tibial prosthetic alignment on standing plantar foot pressure." Engineering in Medicine (2006).


