



QUALITY FOR LIFE

Abstract for Helix Clinical Study

Eva Ludwigs, Dipl. Ing (FH)

Previous studies have shown low end-user acceptance of a hip disarticulation style prosthesis and that the limitations of such prostheses, including poor gait pattern, socket discomfort, weight of the prosthesis, loss of mobility, instability and high energy consumption are a contributing factor.

This study was initiated to determine if a new style of prosthetic hip joint could help to overcome some of the limitations concerning the gait pattern. The present study analyzed the gait pattern of six hip disarticulation amputee subjects. The objective was to compare two different prosthetic hip joints, both from Otto Bock HealthCare: The new Helix(3D) and the 7E7, which is based on the Canadian model proposed by McLaurin (1954). Kinematics and kinetics were recorded by an optoelectronic camera system with six CCD cameras and two force plates.

During weight acceptance, the Helix(3D) extends considerably slower and reaches full extension later than the 7E7. The increased range of pelvic tilt observed with hip disarticulation amputees is significantly reduced (by 5 +/- 3 degrees) when using the Helix(3D) Hip Joint.

In addition, this system showed increased stance phase knee joint flexion as well as increased maximum swing phase knee flexion angles compared to the 7E7. These motion analysis results show that the Helix(3D) Hip Joint can reduce gait abnormalities compared to the uniplanar design of the 7E7 hip joint.

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