Guitar Capo for a Bilateral Upper Extremity Amputee

Caren R. Zatlin, Elze Hemmen, Thomas A. Krouskop, Mark Sklan

The 14-year-old shown in Figure 1 sustained high-voltage electrical burns that subsequently warranted right-elbow disarticulation and left short below-elbow amputations. The Houston Amputee Center Team at The Institute for Rehabilitation and Research prescribed conventional bilateral upper-extremity prostheses with heavy-duty cables, left-wrist flexion unit, bilateral wrist rotators, and 5 x Dorrance terminal devices, and he had attended outpatient occupational therapy for unilateral and bilateral prosthetic training to achieve maximum independence in activities of daily living skills and to explore avocational potential. On one visit 1½ years after the injury, the patient expressed a strong interest in playing his guitar again. Our Rehabilitation Engineering Center was contacted and the possibility of designing and fabricating a simple device for the guitar was discussed.

A device was created consisting of a sliding phenolic rod capo along a 30-cm (12-inch) stainless steel track bracketed onto each side of the guitar neck (Figures 2 and 3). By holding the capo in the upturned terminal device, the patient could compress the guitar strings across a single fret or on a diagonal across two frets for a wide variety of notes. Because chords played with this device tended to sound discordant, the patient was instructed to compress the strings at every fret and play them by picking with a banjo pick (that has a hook to aid in plucking). This technique proved successful and the patient is enthusiastically training himself to master his special guitar.

Acknowledgment

The research upon which this publication is based was performed pursuant to Baylor College of Medicine Grant No. 23P-57888/6 with the National Institute for Handicapped Research, Department of Education.