THE BIONIC GLOVE

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The Bionic Glove, a non-invasive FES device that restores hand opening and pinch-grip in the paralysed hands of spinal-cord-injured or hemiparetic individuals is now in the final stages of clinical testing and technology transfer (Prochazka et al. 1995; Wieler et al., 1995). A multicentre trial of the glove is underway in 6 centres in Canada (2), the USA (2) and Europe (2). By February 1996, 30 C5/C6 quadriplegic people had been fitted with Bionic Gloves and 5 more users are selected in Adelaide Australia. Commercialization of the device is underway through the Edmonton-based spin-off company Neuromotion Inc. The Bionic Glove stimulates muscles through self-adhesive surface electrodes that are applied to the skin over 1-3 motor points. It is made of light-weight, stretchy materials and has metal-mesh conductive panels that make automatic contact with studs on self-adhesive skin electrodes when the glove is donned. Command signals for hand-opening and pinch-grip are derived from a wrist movement sensor. Stimulus parameters are set using a Notebook computer running a user-friendly graphical interface. The clinical trial is now nearing completion in most centres, and a clear picture has emerged of usage patterns and compliance with the present design. An upgraded version of the glove suitable for commercial distribution is now under development.
