Distributed Stimulation of Muscle In case of Spinal Cord Injured Patients

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Normal muscle activation involves asynchronous activation of many motor units at low stimulation rates. Attempts to restore function to paralysed muscle usually involve synchronous stimulation of the nerve bundle, at rates high enough to give a reasonably smooth contraction. This leads to rapid fatigue at the neuromuscular junction, greatly complicating efforts to use muscles in feedback loops. Distributed stimulation involves approximating natural stimulation with a small number of inputs stimulated sequentially. This works well for equal inputs. Recent work in the department attempts to accommodate unequal inputs by having unequal intervals, and has worked well in animals. This project aims to adapt a commercial stimulation unit to use optimised distributed stimulation in the legs of paraplegics.