

The effects of exercise on rat sciatic nerve regeneration

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Abstract

Background. The favorable effect on in vitro cellular growth and development, produced by the reactive species of oxygen and nitrogen and the beneficial antioxidant effect of moderate exercise could stimulate the peripheral nerve regeneration and could have neuroprotective action.

Aims. We intended to study the exercise influence on early phase of neuromotoric functional recovery by measuring the sciatic functional index (SFI) in rats with peripheral nerve lesions.

Methods. The sciatic nerve was acutely injured by crush lesion in Wistar rats, white, male. The control group (n=10) was sedentary; the exercise group (n=10) was subjected to 14 days of swimming exercise training, starting with the 14th day after surgery.

Results. During the early phase of the recovery period, exercise training enhanced functional recovery. The SFI was significantly better in the trained group than in the control group.

Conclusions. 1) Exercise training enhances the return of motoric function in the early phase of recovery from peripheral nerve lesion. 2) The beneficial effects of 14 days of swimming training after crush could persist in the late phase of peripheral nerve recovery. 3) The exercise represents a kinetotherapeutic intervention which must be applied from the early phase of peripheral nerve regeneration, together with other therapeutic interventions.

Keywords: exercise, sciatic nerve, regeneration.