**Microsurgical By-Pass with peripheral nerve in the traumatic spinal cord injuries. (BRUNELLI PROJECT).**

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Introduction:

Spinal Cord injuries are still nowadays an unsolved problem, deriving in social and economic problems for those who suffer it and their relatives.

Objectives:

Our aim has been to demonstrate the reinnervetion of the distal muscles after a spinal cord injury, through a procedure consisting in a peripheral nerve by-pass.

Material and Methods:

Connection of the central with the peripheral nervous system, in order to reinnervate the muscles disconnected from the cord was performed in 4 rats using the ciatic nerve of donor rats. A partial spinal cord injury was performed in the receptors and the by-pass sutured to the cord and to the peripheral section in the ciatic nerve. Evaluation of the gait and electroneurography were the evaluation methods.

Results:

We had a null mortality, and all our specimens improved subjectively their gait during the FU. Electroneurography informed of reinnervation signes.

Conclusions:

Our results are in the line of those of Prof. G Brunelli. We consider necessary to perform a comparative study with a control group to determine if the results are not ascribable to the higher plasticity of these animals, besides increasing the number of specimens.

**Robotic applied to microsurgery**

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Intervention strategies and interpretative person-robot cooperation.
Teleoperation with a robot without geometric constraints, teleoperated by a multilink system. We introduce the possibility of microsurgical suture with two remotely operated robotic arms with a similar system operated joystick by the surgeon.
Work done in conjunction with engineers from the Polytechnic University of Barcelona in Catalonia, Spain.