



## **SCI. General overview and perspectives for Neurorehabilitation**

Ángel Gil-Agudo, MD, PhD.

Biomechanics and Technical Aids Department. National  
Hospital for Spinal Cord Injury. Toledo. Spain

### Abstract

During the last 2 decades, we have seen advances in basic and applied sciences, which in turn have fuelled new and innovative research in SCI. These advances in fields such as genetics, biochemistry, physiology, pharmacology, medicine and engineering/bioengineering provide potential solutions to address the many challenges after SCI. Biomedical research includes (1) the process of moving from the “bench to bedside” and harnessing knowledge from basic science to produce new clinical treatment options for SCI during the life span; (2) the rapid proliferation of clinical trials aimed at neurological recovery; (3) the growth of new technologies to restore and improve function; and (4) the challenges of developing relevant outcome measures to evaluate efficacy and effectiveness of interventions. Technology and bioengineering advances are presented in relation to access to high-quality technology; restoration and replacement of movement; and technology to enhance rehabilitation outcomes.

### Recommended references with the talk

- Tate DG, Boninger ML, Jackson AB, Future directions for spinal cord injury research: recent developments and model systems contributions. *Arch Phys Med Rehabil* 2011;92:509-515.
- Sipski ML; Richards JS. Spinal cord injury rehabilitation: state of the science. *Am J Phys Med Rehabil* 2006;85:310-342.
- Crasey GH, Ho CH, Triolo RJ et al. Clinical application of electrical stimulation after spinal cord injury. *J Spinal Cord Med* 2004;78:365-375.

- Marino RJ, Barros T, Biering-Sorensen F, Burns SP, Donovan WH, Graves DE et al. International Standard for neurological classification of spinal cord injury. *J Spinal Cord Med* 2003; 26(Suppl 1): S50-S56.