

Editorial

Special Issue “Spine and Spinal Cord Biomechanics and Rehabilitation”

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Spinal cord injuries are directly related to quality of life. The development of diagnostic and therapeutic methods for the spine and spinal cord is an important area for maintaining quality of life. In the field of the spine and spinal cord, regeneration and alignment research has been very active in recent years, but a wide variety of another research exists as well.

In this Issue, we will focus on the spinal cord and spine biomechanics, computer simulation, and rehabilitation research. This Special Issue aimed to collect and present the research on all of the spine and spinal cord, including clinical research, biomechanics, engineering, rehabilitation, and others.

Although submissions for this Special Issue have been accepted, a total of seven papers (six research papers and one case report) in various fields of Spine and Spinal Cord Biomechanics and Rehabilitation are presented in this Special Issue. Nishida et al. reported on the relationship between the resection of ligamentum flavum and cervical alignment of the laminoplasty using a finite element model created from medical images [1,2]. The influence of the morphology of diffuse idiopathic skeletal hyperostosis was also discussed in respect of biomechanical and clinical problem [3,4]. Mihara et al. analyzed the mechanical properties of the ligamentum flavum as the basic data for the simulation and demonstrated age-related differences [5]. Sakaguchi et al. reported the importance of postoperative rehabilitation of adult spinal deformity (ASD), which is currently a major problem. They reported that, at 12 months after surgery, gait ability and dynamic posture balance became better than preoperative levels, but static posture balance was at the same level as preoperative status, and suggested that rehabilitation staff should pay special attention to patients' static balance within 12 months after ASD surgery [6]. Zhenget al. reported that CatWalk XT[®] gait analysis correlates closely with tissue damage after cervical spine contusion/compression SCI, and can be used as an objective and consistent tool to assess motor recovery. We hope that these studies will lead to a cure for spinal cord injury. We also look forward to additional papers in the future.

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