

# RESEARCH PROJECTS

AOSpine Latin America stimulates research as a key tool to capacitate surgeons. The high capacity and good quality of scientific papers in our region show that the efforts made have produced good results. Due to their quality, some of these articles were published in first line scientific journals:

PROJECT NAME	SCOPE	RESEARCHERS	STATUS
Current Status of Worldwide Use of Patient-Reported Outcome Measures (PROMs) in Spine Care.	Patient-reported outcome measures (PROMs) are the most widely accepted means of measuring outcomes after spine procedures. We sought to determine the current status of worldwide use of PROMs in Latin America (LA), Europe (EU), Asia Pacific (AP), North America (NA), and Middle East (ME) to determine the barrier to its full implementation.	Asdrubal Falavigna (BR), Diego Cassol Dozza (BR), Alisson R.Teles (BR), Chung Chek Wong (MY), Giuseppe Barbagallo (IT), Darrel Brodke (US), Abdulaziz Al-Mutair (KW), Zoher Ghogawala (US), K. Daniel Riew (US).	COMPLETED AND PUBLISHED World Neurosurgery Volume 108, December 2017, Pages 328-335 Published: 08 September 2017
Knowledge and Attitude Regarding Radiation Exposure Amongst Latin America Spine Surgeons.	Spine surgeons are exposed to high amounts of radiation from fluoroscopic procedures during their lifetime. In this study, we evaluated spine surgeons' knowledge of and attitude regarding radiation exposure during spine surgery.	Asdrubal Falavigna (BR), Miguel B.Ramos (BR); Alexandre Sadao Iutaka (BR), Cristiano Menezes (BR), Juan Emmerich (AR), Néstor Taboada (CO), K. Daniel Riew (US).	COMPLETED AND PUBLISHED World Neurosurgery Volume 112, April 2018, Pages e823-e829 Published: 01 February 2018
Hyperbaric therapy for sperm viability improvement after spinal cord injury	Infertility is one of many complications of spinal cord injury (SCI) in male patients, who are often at the peak of their reproductive life. This study evaluated effects of hyperbaric therapy (HT) on quality of sperm of rats with SCI and correlated the findings with histologic analysis of the testicles.	Asdrubal Falavigna (BR); Pedro G. da Silva (BR); Lucas P. Conzatti (BR); Louise M. Corbellini (BR); Caroline S. Cagliari (BR); Fabio F. Pasqualotto (BR).	COMPLETED AND PUBLISHED World Neurosurgery Volume 113, May 2018, Pages e232-e238 Published: 09 February 2018
Worldwide Knowledge and Attitude of Spine Surgeons Regarding Radiation Exposure.	Spine surgery often requires the use of radiation by means of fluoroscopy during surgery, and fluoroscopy-assisted spinal procedures are on the rise worldwide. <sup>1</sup> This is due to the dramatic growth in popularity of minimally invasive surgery (MIS) techniques and endoscopy, which often require real-time fluoroscopic visualization to perform precise intraoperative localization and minimize instrument and implant malposition.	Asdrubal Falavigna (BR); Miguel B. Ramos (BR); Chung Chek Wong (MY); Giuseppe Barbagallo (IT); Darrel Brodke (US); Abdulaziz Al-Mutair (KW); Zoher Ghogawala (US); K Daniel Riew (US).	COMPLETED AND PUBLISHED Neurosurgery, Volume 83, Issue 4, 1 October 2018, Pages E153-E161 Published: 07 June 2018

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Polyurethane tissue adhesives for annulus fibrosus repair: Mechanical restoration and cytotoxicity.	Lower-back pain caused by degenerative intervertebral disc (IVD) is a significant reason for long-term disability for millions of people. An incision made in the annulus fibrosus (AF) during the microdiscectomy of the IVD remains open and must be sealed to avoid reherniation and the subsequent degeneration of the disc. In this study, we developed an injectable and in situ-polymerizable polyurethane adhesive as an AF repair strategy following microdiscectomy.	Lucas Dall Agnol (BR), Fernanda T. G. Dias (BR), Natália F. Nicoletti (BR), Daniel Marinowicz (BR).	ONGOING
Active Biomolecules Incorporated into a Polymeric Biomaterial as Potential Mediators in Collagen Replacement.	The study aims the evaluation of the role of active biomolecules such as PDGF-BB and PRP loaded or not into polymeric biomaterial to seek potential mediators in types I and III collagen deposition and epithelization.	Anderson R. Ingracio (BR); Asdrubal Falavigna (BR).	ONGOING
Relationship between the degree of lumbar degenerative discopathy and genotoxicity, apoptosis and autophagy.	The study proposes the analysis of the disc material after a lumbar spine surgery to analyze degenerative processes and send it to the laboratory of Cell Biology. For the purpose of determining degrees of apoptosis, autophagy, genotoxicity and their interrelationships with biochemical tests.	Asdrubal Falavigna(BR); Bruno Saciloto (BR).	ONGOING
Comparative study of the action of Hyaluronic Acid in joint repair in distinct models of cartilage and intervertebral disc: in vitro evaluation.	The articular cartilage, composed mainly of dense connective tissue, together with synovial fluid acts to reduce friction and shock absorption during the joint movement. Joint impairment has a strong impact on mobility and quality of life.	Asdrubal Falavigna (BR); Leonardo Nascimento (BR).	ONGOING
Design of software architecture to promote reuse of business rules and systems evolution.	In their simplest form, business rules can be defined as a part of the system which specifies its basic functionalities. This information is a major asset of the system, and adds further value by delimiting where in the system organization they were defined. Some fundamental principles should guide the implementation of business rules such as: they should be explicit, single-sourced and easily manageable; they can exist independent of procedures, workflows and technologies, they present a high level of decoupling . Decoupling is a key feature because it divides the software into independent parts or modules, consequently decreasing the impact of future changes and errors.	Asdrubal Falavigna (BR); Leonardo Pellizzoni (BR).	ONGOING
Relation between Genotoxicity and degenerative disc disease.	Cometa assay, micronucleo and DNA fragmentation analysis of 45 discs obtained during routine spine surgery to correlate their degree of degeneration (Pfirmann Scale) with the DNA damage of the disc degeneration.	Asdrubal Falavigna(BR); Charles Carrazo (BR).	ONGOING
Crosstalk between autophagy and apoptosis in intervertebral disc disease.	Immunohistochemical analysis of 45 discs obtained during routine spine surgery to correlate their degree of degeneration (Pfirmann Scale) with the activation of caspases -3 and -9, as well as HE staining. To clarify the interaction between autophagic and apoptotic events which eventually result in disc degeneration and pain.	Asdrubal Falavigna(BR); Bruno Saciloto (BR).	ONGOING
Solution blow spinning (SBS) as new feasible carrier to treat traumatic spinal cord injury.	The goal is to develop a simple, translational and cost-effective system that combines active biomaterials and cellular therapy (stem cells) in a new delivery system, feasible for future translational application. The SBS technique has been a recent and critical development in the last 5 years in basic research and scientific publications for many different fields of usage.	André O. Arruda (BR); Asdrubal Falavigna(BR); Fernanda T. G. Dias (BR); Natália Nicoletti (BR); Otavio Bianchi (BR).	ONGOING