

# The AAOT Surgical Skills Center and Patient Safety

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One of the main problems detected in the training of resident physicians and, in general, in all those who take their first steps in a surgical specialty is the acquisition of skills, abilities, and techniques when such acquisition occurs directly in patient interventions, often through trial and error.

The teaching duty of experienced specialists is two-fold: to teach skills to colleagues in training while also protecting the patients entrusted to our care.

This is how learning techniques on simulated models emerged, whether synthetic or based on anatomical specimens from animals and humans. These methods make it possible to learn, apply and master the different stages of an operation (from surgical access to the actual technique) in order to successfully perform them on living human beings, reducing the likelihood of errors and iatrogenic injuries.

With these principles in mind, we set out to put them into effect after our Full Members elected me President of the AAOT in 2006. We first visited the BioSkills Lab at the AAOS Orthopedic Learning Center in Rosemont, Illinois, USA and consulted the specialized literature. Finally, we proposed the acquisition of a building for the aforementioned purposes, and the initiative was approved by the AAOT Members Assembly. This property, consisting of two adjacent units with a total area of 300 m<sup>2</sup>, in a building with a convenient location, was purchased at a price of USD 767 per m<sup>2</sup>, remodeled, and equipped with 6 work tables for dry and wet workshop practices and 2 tables for microsurgery practice, as well as zenithal lights and pipes under the floor with electrical wiring and other pipes connected, respectively, to a suction pump and a compressed air or nitrogen center. The piping was designed to connect arthroscopy suction and pneumatic cutting and drilling equipment. Following that, a high-resolution video camera was placed and connected to a large monitor. It was known as the Surgical Skills Center (SSC), and it was established by the Coordinating Committee for the Teaching of Surgical Skills. Article 1 of the SSC Regulations, incorporated into our Bylaws, states that its functions are “to promote all practical activities that allow the development of skills and abilities in surgical techniques and approaches in specialized post-graduate courses, as well as to constantly update and improve these techniques and approaches in the fields of orthopedics, traumatology, and related disciplines.”

The Center is divided into two sectors that cover a total of 300 m<sup>2</sup>. Workstations, dressing rooms, and electrical and mechanical infrastructure are located in one, while an auditorium with a capacity of 40 people, restrooms, and offices are in the other.

The SSC went through several stages: a first stage from 2007 to 2010, under my direction; a second stage from 2011, under Dr. Adriana Pemoff’s direction (when two freezers were purchased and several wet workshops were

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held); and a third stage from 2019 to the present. There was exponential growth during this last period, when I had the honor of directing the Center and chairing the Coordinating Committee.

From November 2019 to April 2024, 34 workshops were held, of which 6 were wet, with fresh anatomical specimens. Two of them were bovine and porcine and were held at the the SSC, while four were human and were held at the Buenos Aires, San Isidro and Bocalandro Clinical Hospitals. The first took place following the signing of a Cooperation Agreement with the Hospital (thanks to the cordial assistance of the directors Dr. Marcelo Melo and Dr. Andrés Ferrero), and the other two were possible thanks to the efforts of our current President, Dr. Carlos Autorino. Said workshops dealt with the following topics: Osteosynthesis in simulated model, Osteosynthesis in the elbow region, Osteosynthesis of the proximal humerus and diaphysis, External fixators and damage control in the lower limb, Practical principles in primary hip arthroplasty, Introduction to spinal trauma, and Basic surgical maneuvers in Orthopedics and Traumatology. A total of 958 orthopedists and 68 surgical technologists attended. In that period, at dollar value of each year, approximately USD 49,185 were collected from registrations. Approximately 25% was allocated to the purchase of equipment and instruments and 30% to the purchase of supplies for the workshops.

During this time, particularly under the direction of Drs. Olivetto, Varaona, and Autorino, the SSC was equipped with 8 surgical cubicles that included general and orthopedic surgery instruments (curettes, rasps, osteotomes, bone gouges, Hohmann retractors), a high resolution video camera, and, most recently, a new projector and zenithal LED lights for the work tables.

The activities were aimed especially at residents and specialists in training, with accessible fees and emphasis on “hands-on” activities, with as many boxes of implants as workstations with groups of 3-4 participants each, so that each one could execute the different steps of the technique in question. Previously, there was a theoretical update on the subject and a practical description of the corresponding exercise.

In our workshops, we attempt to fulfill the three stages of skill and ability acquisition (Fitts PM, Posner MI. Human performance. Belmont, CA: Brooks/Cole Publishing Company; 1967):

1. The cognitive stage, i.e., the understanding of what needs to be done.
2. The associative stage, i.e., learning to perform the skill.
3. The autonomous stage, i.e., when the skill becomes automatic.

In this way, a practical complement to the theoretical activities of the Triennial Specialization Course was developed, while adhering to the notion of acquiring abilities and skills prior to performing the corresponding techniques on patients.

I would like to highlight, in an undoubtedly incomplete enumeration, the disinterested participation in these activities of numerous teachers and instructors, including: for the Coordinating Committee, Andrés Del Valle, Guido Carabelli, Federico Burgo, Guillermo Ricciardi, Daniel Villena, Carlos Autorino, Federico Manfrin, Andrés Glasberg, and Julieta Porta; and for the Subcommittee, Hernán Aguilar, Pablo Buchuk, Federico Mori, Marcos Ávalos, Gabriel Morano, Martín González, Víctor García, Carlos Vega, Solange Ferraguti, and Micaela Besse. Additionally, Roque Nigro, Homero De Agostino, Hernán Barrachina, Daniel Algieri, Carlos Balbi and Oscar Zimman, among others, collaborated in teaching activities. Finally, Mrs. Natalia Morgani, the efficient secretary who tirelessly collaborated and organized the various events, deserves special recognition.

We would also like to thank the institutional and equipment support of the AAOT Board of Directors, successively presided by Dr. Carlos Sancineto, Dr. Miguel A. Ayerza, Dr. Andrés Silberman, Dr. Roberto Olivetto, Dr. José M. Varaona and Dr. Carlos Autorino.

However, this update would be incomplete unless we included future projects. In this regard, we believe that, in the near future, we may incorporate Microsurgical Orthoplasty workshops, expand the role of wet workshops, and equip the Center with operating table microscopes and, eventually, an image intensifier.

It is our intention to work together with the Continuing Medical Education Committee, in order to add the necessary practical complement to the intense work of theoretical training that the AAOT has been carrying out for decades.

Although the goal towards which we are walking may seem distant, perhaps the path we are on is more important.

As Antonio Machado said: “Traveler, there is no path, the path is made by walking.”