

Orthotics and Prosthetics Education in Latin America



THE NEED FOR ORTHOTIC AND PROSTHETIC TRAINING IN LATIN AMERICA

Far too many people in our world remain disabled not because of a missing limb or the inability to walk due to pain, but because of a missing orthotic or prosthetic. More than 80% of the population of the world and a vast reservoir of orthopedic pathology is located in developing countries such as Latin America. Latin America, with a population of 513 million, has only one International Society for Prosthetics and Orthotics (ISPO) accredited orthotics and prosthetics educational program the Don Bosco University in El Salvador. In comparison, the United States, with a population of 300 million, has 13 ISPO accredited orthotics and prosthetics educational programs scattered throughout the country. In Latin America, there are less than 50 certified orthotic and prosthetic practitioners and 1500 uncertified practitioners to care for a population of 513 million. Consequently, 2.5 million people in Latin America have unmet orthotic and prosthetic needs. The orthotic and prosthetic needs of people in Latin America are immense and the plight of certified orthotic and prosthetic practitioners is precarious. To begin, there is a definite need for accredited orthotics and prosthetics technician programs throughout Latin America.

THE SPECIFIC AIM OF I PRO 309

The objective of I PRO 309 was to develop educational modules that will assist in the ISPO accreditation of both Cento Don Bosco in Bogota, Colombia, and Joliet Junior College in Joliet, Illinois.

THE PROCESS

The I PRO team was divided into sub-teams to cover each of the following three educational modules:

1. Stroke
2. Club Foot
3. Spinal Trauma

Research was conducted by each sub-team on a weekly basis. Each student on a sub-team had to search for, read through, and assimilate a significant amount of detailed information on their respective educational module. This information was then compiled into a PowerPoint presentation, and brochure for each educational module to be implemented both at Cento Don Bosco and Joliet Junior College. Within the sub-teams, each student researched a specific component of the educational module, created PowerPoint slides on the component, and presented those slides to the rest of the I PRO team, so that every student in I PRO 309 had knowledge of the three educational modules.

In order to ensure that each sub-team was progressing in the right direction and in a timely manner, and to inform the I PRO team about each educational module, practice presentations by each sub-team were done every other week. Critical feedback was obtained from the rest of the I PRO team, and implemented to make each presentation as clear, concise, and effective as possible.

To ensure that each presentation could be understood by high school students, vocabulary sheets of advanced medical terminology were assembled for each presentation. Faculty advisor, Dr. Kevin Meade, a licensed Orthotist, presented a case study from either Latin America or the United States almost every team meeting, which helped consolidate each student's general knowledge of orthotics and prosthetics, and served as an example as they progressed on their own individual sub-team research. As the internet has opened up access to electronic information for trainees in developing countries, a website containing information about I PRO 309 and the PowerPoint presentations, brochures, and vocabulary lists of the three educational modules was also created.

THE THREE EDUCATIONAL MODULES

1. STROKE

A stroke is a sudden loss of brain function caused when the blood supply to part of the brain has been disrupted.

Statistics in Colombia

- 715,500 estimated strokes per year
- Prevalence per 1000 people
- Rural 4.1
- Urban 9.6
- Total 6.51
- 19% are strokes are Ischemic strokes



Upper Limb Orthosis

Upper extremity orthosis can be greatly improve motor control and muscle strength

- Resting Wrist Splint
- SaeboFlex
- SaeboStretch



Lower Limb Orthosis

With a stroke, movement in the lower body, such as walking and balance can occur

- Hip-ankle-foot orthosis
- Knee-ankle-foot orthosis
- Ankle-foot orthosis
- Shoe inserts



2. CLUB FOOT

Club foot is a birth defect in which the foot is twisted in and down. People with club feet appear to walk on their ankles or sides of their feet.

Deformities in Club Foot

- Ankle joint is flexed (Equinus deformity)
- Heel is turned in (Varus deformity)
- High medial arch (Cavus deformity)
- Foot is bean shaped and curled outer border (Adductus deformity)



Ponsetti Method

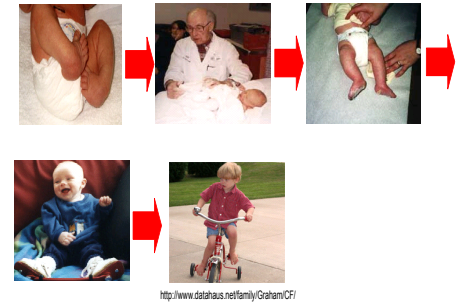
1. Tenotomy: an Achilles tendon lengthening minimally invasive surgery before application of final cast
2. Corrective foot orthosis worn full time for 3 months
3. Light wear for up to 2 years to prevent deformity from recurring



Types of Foot Orthosis



Case Study: Graham



3. SPINE TRAUMA

An injury to the tissue, bone, or nerves of the spine.

Denis III:



Thoraco Lumbarsacral Orthosis (TLSO):

- Custom fit and made for the patient
- A body jacket or TLSO controls motion in all three anatomical planes
- A two piece front and back design is commonly used post operatively for ease of application while a front or back opening single piece design is commonly utilized when treating scoliosis

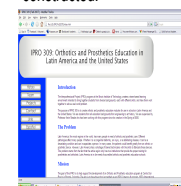


Fabrication of a TLSO

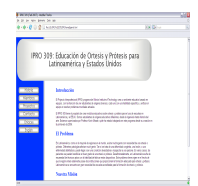


THE WEBSITE

In order to make our information on prosthetics and orthotics readily available worldwide, a website with each educational module was constructed.



I PRO 309 English Website



I PRO 309 Spanish Website

THE FUTURE

It is our hope that orthopedic training in the developing countries will be a concern for all of us. That training programs in the developed world will ask what they can do on a global level, and that communications, exchange programs, bilateral research programs, and mutual understanding will continue to bring orthotic and prosthetic educators closer together.