Final Presentation

IPRO 309

Team Presenters:

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Human
Orthotics and
Prosthetics
Education

http://www.iit.edu/ipro309f08

Problem Statement

- 2.5 million people in Latin America are in need of orthotic and/or prosthetic care.
- In Colombia alone, over 250,000 people are waiting for treatment.
- Only 50 ISPO(Intl Society for P&O) certified (10 in Colombia) and 1500 uncertified practitioners exist.
- Some patients are in need of orthotic and/or prosthetic care in lieu of painful, expensive, & permanent surgery.

Orthosis vs. Prosthesis

What is an Orthosis?

A device applied to a human limb to control or enhance movement or to prevent bone movement or deformity, for example, a splint or an arch support.

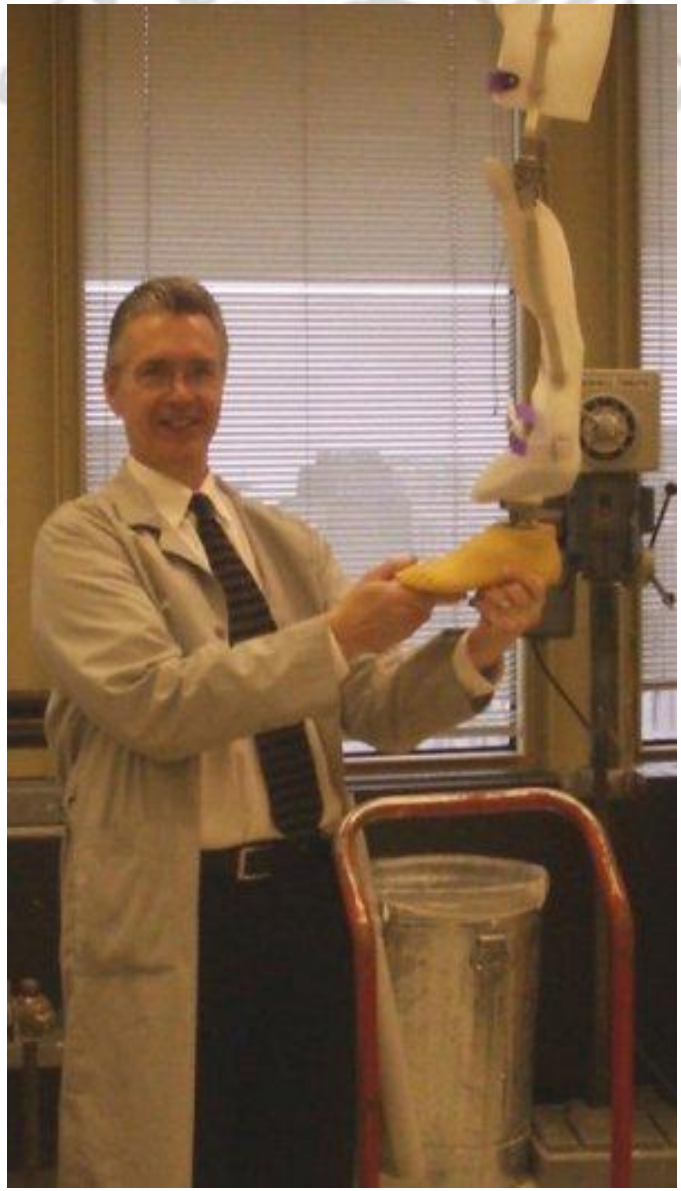
What is a Prosthesis?

An artificial replacement of a body part. It may be an internal replacement such as an artificial joint or an external replacement such as an artificial limb.

History

Project History

- We are 6th semester
- 1st semester: Biomechanics
- 2nd semester: Anatomy/Measurements
- 3rd & 4th semesters: Subgroup Pathologies
- 5th semester: Age Relation
- 6th semester: Subgroup Pathologies and Orthotic Fabrication



Mission

- Our goal is to provide educational information to support the Orthotic and Prosthetic (O&P) Technician Training Program at Centro Don Bosco in Bogotá.
- Throughout this semester we tested the effectiveness of our educational modules by using them to fabricate an actual orthotic device.

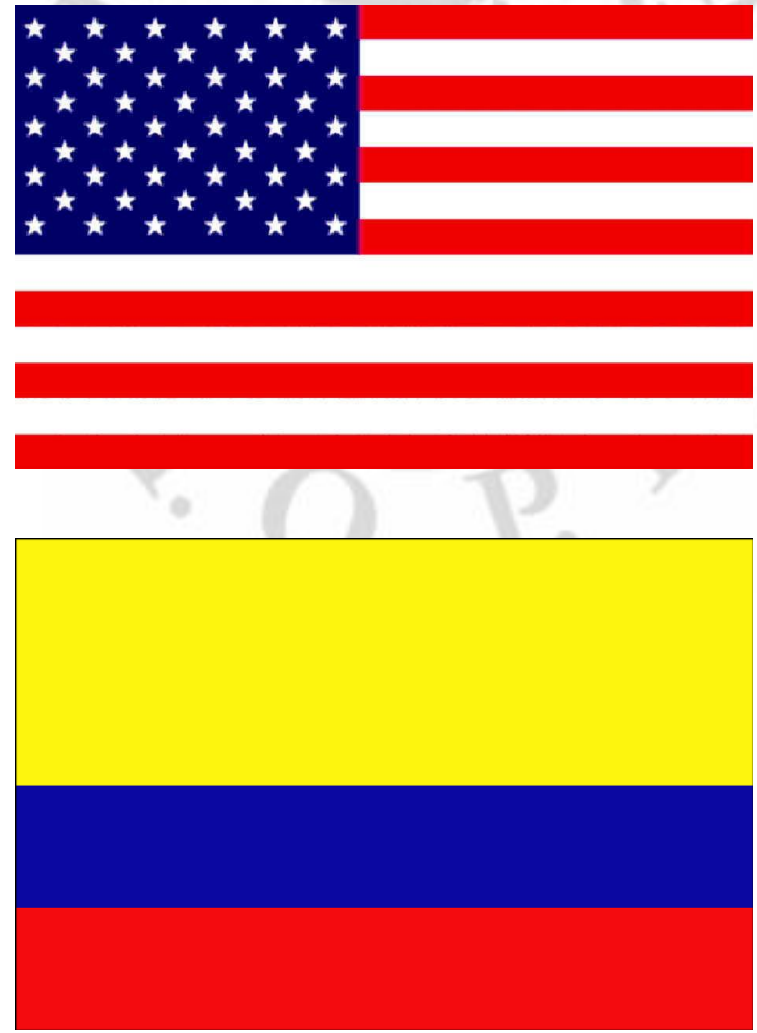
Shared mission

- Each member understands the importance of our research.
- Professor Meade has provided numerous forms of education for us to better understand our subjects and to be able to educate others in turn.

Objectives

Group

- Development and production of several handouts and brochures for the purposes of orthotic education.
- Translation of these materials into Spanish.



Colombian Flag

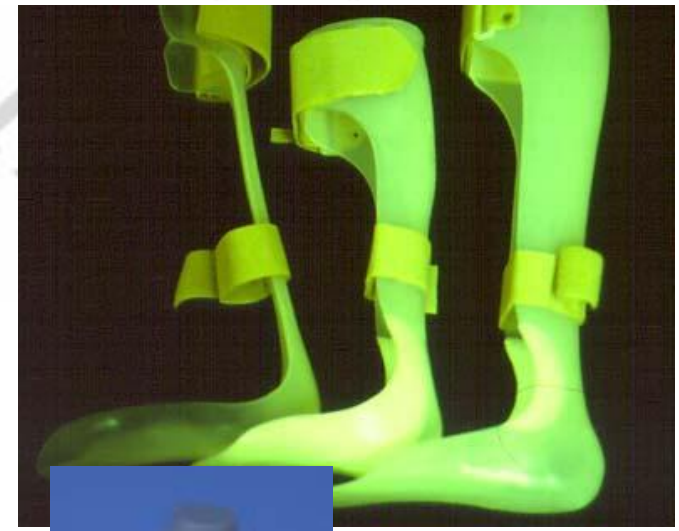
Objectives

Subgroup

- To gain a cohesive understanding of different pathologies related to each created subgroup
- To create an orthotic device for each subgroup using educational modules.
- To develop a PowerPoint presentation detailing an understanding of our mission.


Fig.3


Fig.4



Breakdown of Tasks

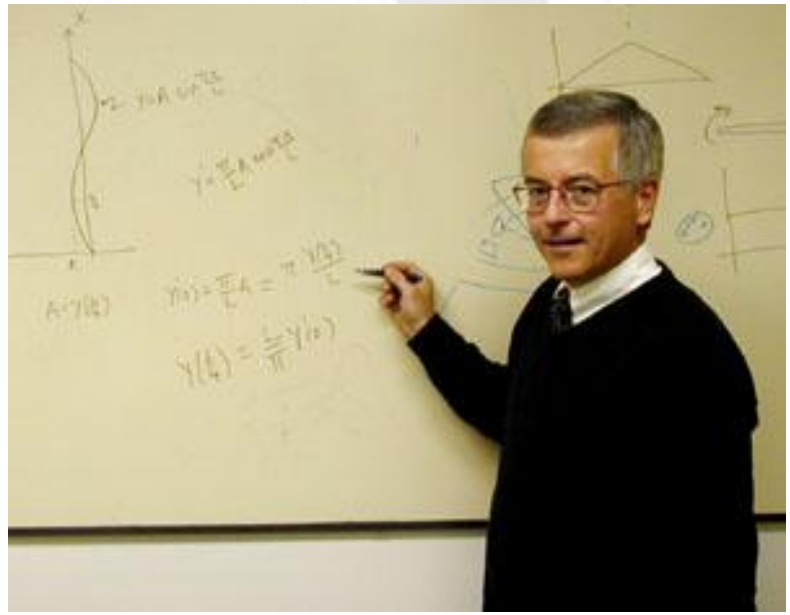
- Each member assigned to different sub-groups that are specialized to perform research on their assigned subject.
- The subgroups then presented information to entire team in order to make well rounded team members and to make efficient use of time.

Subgroup	Team Member	Indidual Job	Major
Lower Limb	Alexander Rial*	Secretary	AE/ME
	Caleb Hallgren	Public Relations	PS
	Chris Salgado	Field Trip / Snack Coordinator	PS
	Cristine Kovacs	Ethical Compliance Coordinator	CS
Spine	Danielle Madere*	Project Manager	BME
	Manuel Castro	Translation Manager	ME
	Mrigank Bhatia	Webmaster	CPE
Upper Limb	Stephanie Fischer*	Vocabulary Manager	CIS
	Claude Anthony	Work Schedule Specialist	PSYCH
	Raymond Harris	IPRO Day Coordinator	BME

**Subgroup Leaders*

Time Management

- Adequate time is given to complete tasks.
- The schedule of events has been monitored daily.
- Next class agenda discussed at end of previous class.
- Schedules of all team members organized in order to coordinate field trips to BioConcepts and the Rehabilitation Institute of Chicago as well as out of class meetings.



Kevin Meade PhD

Work

Tasks Completed

- Developed PowerPoint presentations about pathologies and how to fabricate orthotic devices.
- Developed brochures for each individual subgroup.
- All material created was translated to Spanish.
- Each subgroup made trip to BioConcepts
  - Each subgroup attempted to fabricate their own orthotic device

Methods

- Applied appropriate methods associated with professional practice
- Hands-on Experience
  - Fabrication at BioConcepts
  - Specific techniques applied
- Case study

Highlights

Benefits

- Hands-on learning and participation versus reading about it in a book.
  - Retain knowledge
- Ability to word material in a manner that an average person can understand.
  - Better or newer solutions to problems because we experienced it!

Impact/Risks

Impact

- If successful, we are indirectly helping the need for certified orthotists and prosthetists in Latin America and the United States

Major Risks

- Ethical violations
  - Health Insurance Portability and Accountability Act (HIPAA)
  - Manufacturing low-quality items to meet financial restrictions which could worsen patient condition

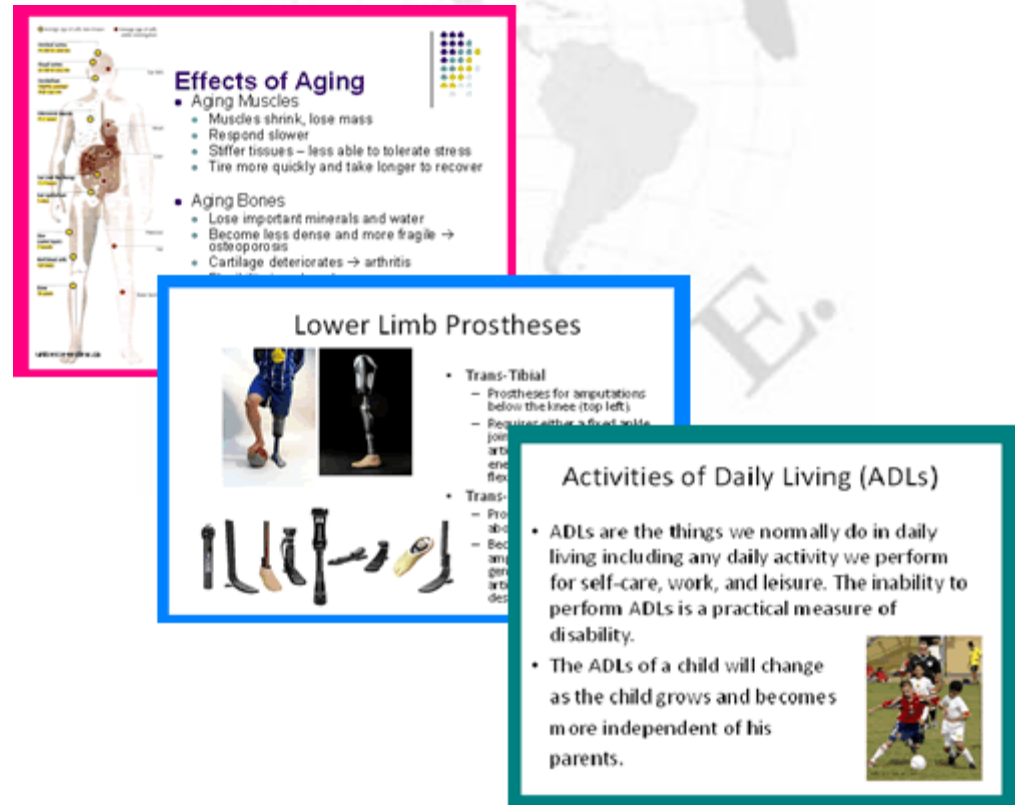
Techniques

Problem-solving techniques

Research Completed:

Pathologies

- Lower Limb
  - -Stroke
  - -Blount's Disease
- Spine
  - -Vertebral compression fractures due to osteoporosis
- Upper Limb
  - -Brachial Palsy
  - -Erbs Palsy



Techniques

- Field Trips
  - Bioconcepts
- General Information
    - Production
  - Rehabilitation Institute of Chicago at Northwestern Memorial Hospital
- Books
  - See Professor Meade
- Information from previous IPRO 309 groups
- PowerPoints
  - See Professor Meade

Challenges

- Inexperience of entire team (first-time IPRO)
- Determining fabrication steps
  - getting the molds to stay intact
- Communication
- Lack of widely available materials

Problems

- Inexperience dealing with fabricating an orthosis
- Production problems
- Language barriers
- Financing

Adversity

- Different team members have taken more responsibility in time of need.
- We have approached situations with strategic management when needed.
- Out-of-classroom work has been done when needed.
- Instituted an attendance policy to prevent absences.

Achievements

What We Did

- Obtained relevant knowledge of the fabrication of 3 different types of orthotic devices specific to assigned pathologies.
- Organized information into a manner in which it can be used to effectively teach and certify orthotic and prosthetic technicians.
- Used information to develop 3 different orthotic devices via the fabrication lab at Bioconcepts.

Conclusions/Recommendations

Conclusions

- Fabrication is not easy!
- Teamwork is crucial in order to be successful with any projects taken on.
- Without communication, any structure of the team will fall apart.

Recommendations

- Better explanations of fabrication methods.
- Better ways to motivate team.
- Better ways to encourage participation, attendance, and communication.

Future of H.O.P.E.

Where to go from here...

- Obtain relevant information about the fabrication of specific prosthetic devices
- Organize information into a manner in which it can be used to effectively teach and certify orthotic and prosthetic technicians
- Use information to develop prosthetic devices

Additional Affliations

- Currently our material is being used for an O&P program at Joliet Junior College, in Joliet Illinois
- We are also supported by the International Committee of the Red Cross

Joliet Junior College

ICRC

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