IPRO 309: Orthotics and Prosthetics Education in Latin America and the United States

Professor Kevin Meade

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What is an Orthosis or Prosthesis?

- **Orthosis** – an appliance designed to straighten or support a body part; an exoskeletal device designed to assist, resist, align or stimulate normal functioning

- **Prosthesis** – a device, either external or implanted, that substitutes for or supplements a missing or defective part of the body

Meet Maas
Stroke Survivor

Orthotic & Prosthetic Treatment

- O&P Training Programs need Certification
  - American Board for Certification (ABC) in Orthotics & Prosthetics
  - International Society for Prosthetics & Orthotics (ISPO)

	Fabrication	Direct Patient Care	Research and Development
Category I	III	II	I
Category II	III	II	
Category III	III		

Problem

Latin America currently has:

- Over 500 million people
- An estimated 2.5 million people with unmet orthotic or prosthetic needs
- Only one Category II O&P educational program accredited by ISPO (Don Bosco University, El Salvador)
- Four other O&P educational programs (locally accredited only)
- Fewer than 50 certified category II practitioners and 1,500 uncertified practitioners

Purpose

- Improve the educational opportunities in orthotics and prosthetics in Latin America and the United States
- Support development of first Category III International Society for Prosthetics and Orthotics (ISPO O&P) program in Latin America, at Centro Don Bosco High School (Bogotá, Colombia)
- Support development of the orthotics and prosthetics technician program at Joliet Junior College (similar to the program in Colombia)

Bryan Malas, MHPE, CO

Director, Moira Tobin Wickes Orthotics Program, Children's Memorial Hospital

History of IPRO 309

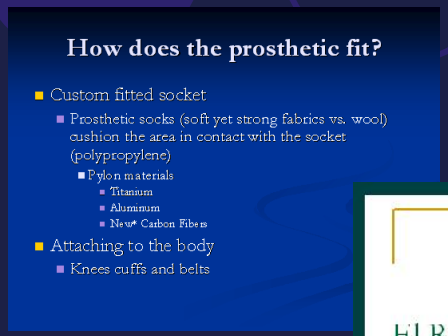
- First IPRO 309 – Spring Semester 2006
  - Need for this type of care spurred a need for the project
- 5 Semesters of IPRO 309
  - Educational Modules
  - Work with professionals in Colombia & the U.S.
- This semester
  - 3 more educational modules
  - Conference in Bogotá, Colombia
- Next semester
  - IPRO 309 will continue to provide learning opportunities to people interested in prosthetics & orthotics

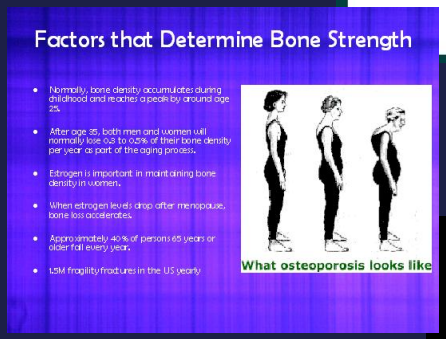
IPRO 309 Timeline

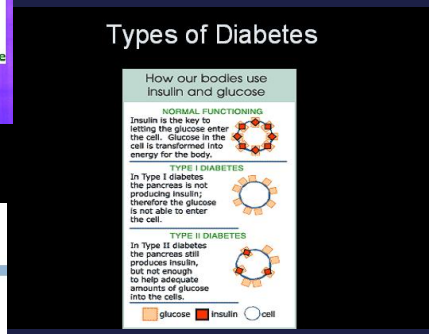
- IPRO 309 – Spring 2006
  - “Academic” orthopedic biomechanics educational modules
  - Four day conference in Bogotá – modules delivered by five-student team
- IPRO 309 – Fall 2006
  - “Clinical” orthopedic biomechanics educational modules
  - Demonstration with students from NUPOC and JJC
- IPRO 309 – Spring 2007
  - Comprehensive review and revision of all educational modules
  - Parallel IPRO 309 in Bogotá at los Andes – modules translated into Spanish
  - Planning for four day conference in Bogotá

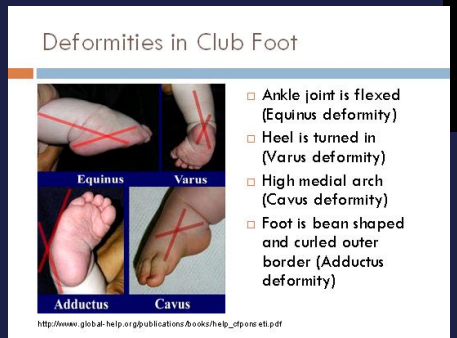
IPRO 309 Educational Modules

- Anatomical Review
- Orthometry
- Materials for Orthotics & Prosthetics
- Manual Muscle Testing
- Palpation of Anatomical Landmarks
- Observational Gait Analysis
- Seated Evaluation
- Walking Aides: Walkers, Canes, & Crutches
- Range of Motion
- Upper Limb Orthotics & Prosthetics
- Spinal Trauma
- Spinal Cord Injuries
- Spinal Cord Neurology
- Spinal Orthotics
- Club Foot
- Drop Foot
- Cerebral Palsy
- Diabetes
- Osteoporosis
- Stroke
- Pediatric Orthotics & Prosthetics
- Adult Orthotics & Prosthetics
- Geriatric Orthotics & Prosthetics









Goals

- Create 3 educational modules addressing pathologies of different age groups
  - Pediatric Module
  - Adult Module
  - Geriatric Module
- Translate all educational materials to Spanish for use in Latin American Schools and in Joliet Junior College
- Present material at prosthetics and orthotics conference in Bogotá, Columbia in May 2008

Team Organization

- Pediatric Category
  - Lydia Benger (Mechanical Engineering)*
  - Robert LaRue (Mechanical Engineering)
  - Stefanie Rozborski (Art History)*
- Adult Category
  - Ross Allen (Aerospace Engineering)
  - Elliot Barlow (Aerospace Engineering)
  - Seth Buntain (Aerospace Engineering)*
- Geriatric Category
  - Marisa De Nicolo (Materials Science and Engineering)
  - Emily Moore (Aerospace Engineering)*
  - Gregory Quandt (Mechanical and Materials Engineering)
  - Heather Selby (Biomedical Engineering)*

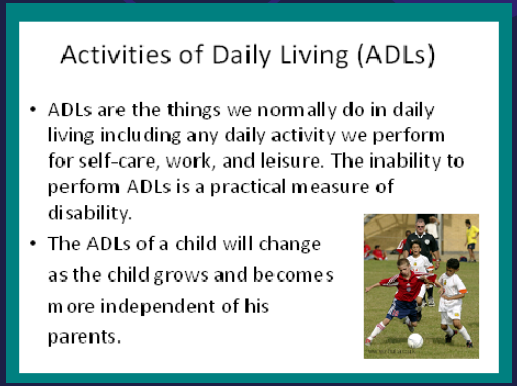
**Returning Students*

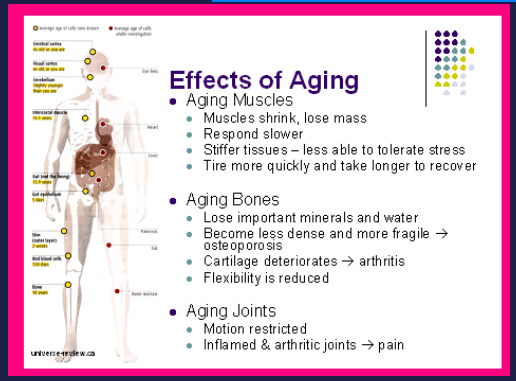
Team Leadership

- *Project Manager*: Emily Moore
- *Project Content Manager*: Seth Buntain
- *Webmaster*: Lydia Benger
- *Vocabulary:* Marisa De Nicolo
- *Minutes Recorder:* Heather Selby
- *Poster Designer:* Stefanie Rozborski & Heather Selby
- *Time Sheet Coordinator:* Stefanie Rozborski
- *Work Schedule Specialist:* Robert LaRue
- *International Conference Coordinator:* Ross Allen
- *Ethics Consultant:* Elliot Barlow
- *Presentation Skills Consultant:* Greg Quandt

Research Methodology

- Overview of age group
- Age-specific impairments
- Types of care
- Orthotic & prosthetic treatment
- Fabrication & Materials
- Case study highlighting age group
- Vocabulary handout
- Summary brochure





Michael Brncick, M.Ed., CPO

Administrative Director of the Northwestern Center for Prosthetics and Orthotics, Associate Professor, Orthotics and Prosthetics Technology Program Coordinator, Joliet Junior College

Obstacles

- Defining the age groups
  - Each age group can be very vague, so the range for ages had to be set

- Technical Vocabulary
  - Medical jargon may not be known by the audience for these educational modules
- Volume of Material
  - The topics researched can have overwhelming amounts of information. The most relevant information must be determined.
- Language Barrier
  - The modules must be translated into Spanish for use in Colombia

Results

- Successfully completed 3 educational modules that have been translated to Spanish
- Created 3 brochures pertaining to the modules
- 3 of the students will attend the conference in Bogotá to present the material
- Wrote a code of ethics specific to the project
- Created a website for the project
- Members learned about the topic of orthotics and prosthetics

Laboratorio Gilete – Bogotá, Colombia

The Future of IPRO 309

- Conference in Bogotá for Orthotics and Prosthetics in May
- IPRO 309 will be working to address ISPO learning objectives concerning ethics, management, teamwork and communications

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- Michael Brncick, M.Ed., CPO
- Northwestern University Prosthetics and Orthotics Center (NUPOC); Chicago, IL
- International Committee for the Red Cross (ICRC)
- Rotary International
- Universidad de los Andes; Bogotá Colombia

¿Preguntas?

Code of Ethics

- Law
  - legalities
- Contracts
  - Agreement from all parties involved
- Professional Codes
  - ABC
  - ISPO
- Industry Standards
  - O&P Standards and medical community
- Community
  - Considerate of local communities affected by project
- Personal Relations
  - Respectful relations
- Moral Values
  - Honesty and integrity