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Prosthetics Outreach Foundation

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Prosthetics Outreach Foundation

Prosthetics Outreach Foundation (POF) is a nonprofit medical service organization that provides urgently needed high-quality prostheses (artificial limbs) to amputees in developing countries and in the United States. Since 1988, the staff and volunteers have fitted over 10,000 children and adults with new prostheses, enabling each amputee to walk again with dignity. POF helps communities to meet the needs of their own amputees by establishing clinics to create and fit artificial limbs and workshops to manufacture prosthetic components with local materials.

The Ongoing Mission of POF

- POF provides humanitarian relief and modern prosthetic care to amputees in developing countries.
- POF employs the use of computer-aided design and manufacturing technology for high quality automated prosthetic treatments.
- POF provides regular clinical outreach services to amputees living in remote regions.
- POF conducts ongoing research into prosthetic components which are durable enough to withstand the harsh physical and climatic conditions typical to tropical regions.
- POF assists communities in becoming self-reliant by establishing clinics and workshops to manufacture prosthetic components with local materials.
- POF serves as a technical and clinical resource for amputees, government institutions, and humanitarian organizations.

Dr. Ernest Burgess

Burgess pioneered hip replacement surgery, new techniques in amputation surgery and became the mentor to generations of orthopedic surgery residents. He introduced the long posterior flap amputation technique in the United States following an academic exchange tour of Poland. This technique dramatically improved circulation in the residual limb and allowed many amputees to enjoy a more active lifestyle.

In 1964, the United States Veterans Administration asked Burgess to establish Prosthetics Research Study (PRS). PRS has become one of the leading centers in the world for developing postoperative care that directly improves the rehabilitation of the amputee.

Technology and Innovations

Developed at PRS

- Immediate post-operative fitting (IPOF) of a prosthetic improved healing and rehabilitation time considerably.
- The Seattle Foot, which has an internal spring, opened the door for amputees seeking an active lifestyle. "Compliant foot" based on this model have also improved comfort for amputees of all ages.
- Burgess's rehabilitation program and prosthetic design have continued to greatly impact the prosthetics profession. Seattle ShapeMaker@ software and the AFMA project has improved accuracy, efficiency and consistency in the design and production of prosthetics.
- In 1994, an Endowed Burgess Chair was established at the University of Washington Medical School to fund orthopedic research.

American veteran amputees who had returned to Vietnam and were aware of the horrible inadequacies of medical services and prosthetics there, asked Burgess to help the thousands of Vietnamese men, women and children in need of such care. In 1988, with the assistance of volunteers, POF began the planning for a demonstration clinic in Vietnam. The Prosthetics Outreach Center (POC) opened in 1991 to provide free limps to amputees in desperate need of prosthetics. To date, thousands of amputees have received a prosthetic free of charge.

Nicaragua

POF assisted the Mercy Ships organization with the creation of their mobile prosthetics workshop, including design, installation and staff training. This unique self-contained workshop is housed in a 20-foot long standard shipping container. The workshop was transported to Leon, Nicaragua, where it provided prosthetic services for the surrounding region. Mathews provided the Mercy Ships staff with training in AFMA techniques and in the fabrication of the Monolimb. Only two staff members were needed to complete more than 200 limbs in this very efficient facility. Following the Hurricane Mitch disaster, POF donated a shipment of prosthetic feet to the National Rehabilitation Center in Managua, Nicaragua continues to need outreach services to the many remote communities where amputee services are unavailable. Your donation can help POF to fund a prosthesis outreach clinic in Central America.

1999 Milestones

POF Sends Hope to Kosovo Amputees

POF announced plans in June 1999 to send 250 prosthetic feet to landmine victims in Albania and Kosovo. Two hundred adult and 50 child-sized artificial limbs will be distributed in 1999 to help sustain survivors in this war torn region during the transition to peace.

Little Footprints

POF announced in July 1999 a goal to provide artificial limbs to 500 Vietnamese women and children in need during the year 2000. The estimated cost to complete this project is $100,000. Beginning in 1996, Prosthetics Outreach Foundation began a series of development projects with the goal of improving the quality of the prosthetic service in Vietnam and enabling the Vietnamese people to become self-sufficient in prosthetic technology and clinical services. The staff at POF welcomes the opportunity to share this clinical technology and we look forward to a dialogue with colleagues who have suggestions for improvement.

Bi V.i Orthopedic Technology Center

This center, located 50 kilometers west of Hanoi, is the national manufacturing center for rehabilitation products in Vietnam. The buildings and machines are old, but the staff has the energy and enthusiasm to design and manufacture new products of improved quality and function. This collaborative project could serve as a model for self-reliance for other countries.

Technological Updates

- EB1 Foot: The foot component of prosthetics historically has been a design challenge in regard to the durability of the prosthetic. A team of engineers and prosthetists both in Hanoi and Seattle set about to design, test and manufacture a durable, locally manufactured foot named the EB1.
- Modular Components: In addition to the foot manufacture, a system of modular above-knee and below-knee components has also been manufactured. These include a knee joint, 30mm poly, and alignment adapter with mounting plate, Monolimb bushing and suspension rods. Local suppliers have also been located for 6mm, 8mm and 10mm bolts, cotton stump socks, leather suspension belts, pelite and copolymer plastic materials.

Prosthetics Outreach Clinic (POC)

POC is both a central fabrication workshop for the mobile prosthetic outreach service and a research facility to improve the quality of the prosthetics. All prototype components are tested on a small group of patients affiliated with the clinic.

- POF Monolimbs: Many amputees in Vietnam have long residual limbs, which are typical of landmine injuries. As a practical prosthetic solution, the Monolimb (or extended below knee socket) was fabricated. POF refined the components and fabrication techniques to make the monolimb a very affordable, durable, and high-quality prosthetic.
- ShapeMaker Alignment: Although a Monolimbs can be fabricated using manual methods, POF is dedicated to designing the Monolimbs using the AFMA techniques. The new alignment screen now featured in version 4.3 of Seattle Shapemaker allows a complete prosthetic to be designed and fabricated.
- Quality Assurance: The process of quality improvement and quality control in manufacturing has required POF to establish a basic laboratory to test prototype designs. The static and cyclic testing machines were manufactured at Bi Vi.

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