

# IMPROVING LIVES WORLDWIDE

## Teaching others to “walk free”

by Becker J. Gutsch



**H**earing about poor living conditions and a bleak future for abandoned children growing up in Chinese orphanages, Chelan Pedrow was inspired to spend the summer following her University of Idaho (UI) freshman year serving this disadvantaged population.

Raising her own funds, she embarked on the great unknown of a third-world country half a world away. She found love-starved orphans, many with physical handicaps such as missing hands or extremities, clubfoot deformities, and underdeveloped limbs. She rocked, fed, and changed the diapers of approximately 50 infants a day while showing compassion and enormous love for their tender souls. Upon her return to UI, and knowing that she wanted to

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make a difference in damaged lives, she changed her major from English to biological systems engineering.

### Fast forward four years

As a biological systems engineering major, Pedrow was required to identify and solve an engineering problem for her capstone senior design project. She recalled the plight of a 6-year-old Chinese orphan who lost his parents and right leg above the knee in an automobile accident. Knowing of the lack of funds and medical care in third-world countries that is needed for replacing prosthetic limbs of growing children, she was inspired to design a prosthetic leg that would grow as a child grew.

Pedrow enlisted fellow biological systems engineering students, Jennifer Neibling and Matt Plaisted, to tackle the design problem. Many design iterations were made in deciding how to best achieve the desired growth. The ideas of hydraulics, magnetorheological fluids, and external growth devices were all considered, however many ideas did not suit the target patient – an active, rough-and-tough, 6-year-old child. The team project, sponsored by Hanger Orthotics, went through many trial-and-error processes until a working prototype was developed.

The innovative design was so unique that it earned an award for excellence at the 2005 UI Engineering Design Expo competition. The next step for the project is to develop a second prototype using the newest technology available.

### Volunteering for a new humanitarian challenge

The design experience broadened Pedrow’s horizons to the greater need of amputees around the world whose lives are irrevocably changed by war. This need led to her next humanitarian effort, a volunteer project with Physicians for Peace, an international, humanitarian, nonprofit medical education organization

dedicated to building peace and international friendships in developing nations with unmet medical needs and scarce resources. Taking early finals and missing her own graduation, Pedrow joined the American team in the project dubbed “Walking Free.”

Because it was too dangerous for the team to enter active war-torn areas of Iraq, the Royal Jordanian Medical Center was the site chosen for education and services. Each morning a charter bus picked up the American and Basra teams, transporting them a short distance to the military hospital. The hospital was well guarded by soldiers monitoring the flow of personnel entering the grounds. For safety reasons, the names of Iraqi patients and medical personnel could not be revealed.

Working with medical teams from Basra, Jordan, and the United States, along with the amputees, Pedrow’s compassion grew for the people and the task at hand. Word spread that the Americans were fitting limbs. Farmers from the fields, mothers with deformed children, rich and poor alike, approached the facility. No one was turned away.

During the 12-day clinic, skills were honed, prosthetics were fit to amputees, and physical therapists learned rehabilitation techniques as amputees were guided through their first steps. Pedrow became the go-to person, using her Arabic language studies to translate notes and language for American doctors and laminating resin prosthesis and creating sockets.

### Each person had a story

One Iraqi soldier, who lost his foot in the Iraq/Iran war in 1988, managed to stay in the military, become a colonel, and now fights for Iraq’s democracy and freedom. Pedrow simply called him “Bear” in honor of his stature.

A boy of 11 lost his leg at a very young age and learned to motor on crutches faster than most people could walk. Receiving his new limb, he walked with the same remarkable skill.

“The fabrication of limbs is magical, but the feeling one gets when you watch a person walk on that limb is indescribable,” exclaims Pedrow, who received her first of

three “marriage proposals” from the young man.

There were many stories and tears of pain and joy as each new limb was fitted and the recipients learned a new way of walking and living.

### Future Steps

“I was able to see what is possible through the actions and encouragement of educators at the University of Idaho,” says Pedrow. “They recognized me as an individual, not a student ID number, and with relentless energy, they extracted the potential they saw.”

Pedrow explains that it was a bumpy road, but the adventure has been rewarding. She began graduate studies this fall at Georgia Tech in the Orthotics and Prosthetics program. Her goal is to work with U.S. military personnel and Middle Eastern civilians whose lives and limbs have been changed by war. With her international experience, she feels that her journey is just beginning with “Walking Free.” Along the way she plans to continue her study of the Arabic language, keep Jordanian and Iraqi contacts intact, and remind people that there are “positive steps” being taken in the Middle East.

*Previous page:* Chelan Pedrow holds the dynamic prosthesis inspired by a young Chinese orphan. The capstone design project earned the biological systems engineering team an Award for Excellence at the annual UI Engineering Design Expo. (Photo credit: Geoff Crimmins, Moscow Daily News)

*Top right:* Chelan Pedrow receives a big hug from an 11-year-old Iraqi patient that received a prosthetic hip and leg. The young man was able to walk and run with a few adjustment sessions. With a twinkling eye, he offered three camels for Pedrow’s hand in marriage. (Photo Credit: Albert Hess)

*Middle right:* Chelan Pedrow works with a Jordanian technician in creating a new lower limb for an Iraqi citizen who had lost both of her legs due to a vascular disease. (Photo credit: Albert Hess)

*Bottom right:* Chelan Pedrow and her guest host take advantage of the traditional mode of transportation while in China.

