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News

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****Patient models help train students
in making artificial limbs.**

DALLAS—"A new amputee often goes through the same stages of grieving that a dying patient goes through -- anger, denial, depression," says Bruce McClellan, director of the Prosthetics and Orthotics Program at The University of Texas Health Science Center at Dallas.

"Though the patient's loss may ultimately be a leg rather than his life, he must work through that difficult period. The practitioner must be sensitive to that patient as a complete human being rather than simply as an amputee who needs a prosthesis."

McClellan and his faculty are training their first class in Prosthetics and Orthotics in the School of Allied Health Sciences at UTHSCD. The program, which opened in September, is only the third bachelor's degree program in the field in the nation.

Prosthetics is the profession that involves the replacement of body parts lost to amputation. The "prosthetist" is the health care professional who provides the artificial limb or prosthesis for the patient. These are also custom-made for the patient.

Orthotics is the discipline that deals with external support of weak or disabled parts of the body. This word is derived from "orthosis" (brace), which in Greek means "making straight." The orthotist treats many different disabilities ranging from the extremities to the spine. Most often orthoses are custom-fabricated specifically for a patient's needs.

Prosthetics/orthotics requires the skills of an engineer as well as those of artist and rehabilitator.

There are a multitude of measurements involved in preparing a cast of the residual limb and fabricating the prosthesis. Then there is the art of making the prosthesis comfortable for the patient. The mechanical adjustments of prosthetic legs are designed to make the patient's gait as natural as possible.

To aid in the training of the students, the school provides "patient models." These are amputees who come in several times during the semester to be fitted with various types of artificial limbs. Paid \$15 per half-day for their time, the patient models rotate among the students.

Fifteen dollars to get out on a cold rainy afternoon to let a student practice fitting an artificial leg when you're happy with the one you have? Is it worth it?

"Oh, yes," says Jana Gonzalez. "This is fun. Are you going to do this again?" Gonzalez is a young housewife whose right leg was amputated below the knee after a car accident a year and a half ago. "If I were at home, I'd just be cleaning house. This way I feel like I'm doing something good for somebody. Besides, I'm learning a lot."

(over)

When student Don Cummings first fits her with the supra condylar suprapatellar suspension (SCSP) leg that he has fabricated (It fits over the knee, and the knee holds it on.), he finds that it is about an inch too long. "It's the heels on her shoes. They're too high for the foot. Pay attention to the shoes," says McClellan as he walks back and forth, questioning and critiquing.

This is the second prosthesis the students have made during this semester of focus on BK (below knee) amputations. The first was a cuff suspension leg with straps.

Cummings shortens the leg by adjusting the metal attachment. Gonzalez walks with the new leg. "I feel like I'm leaning forward," she says. The student looks at McClellan.

"Is she a new or experienced amputee?" McClellan wants to know. A year and a half qualifies the patient-model as experienced. "Trust her judgment," says the director.

"You can rely on the patient for a certain amount of feedback, but you have to learn to interpret," he explains. "If a prosthesis is too loose, the patient often says it's comfortable. If it's too tight, they never say it's comfortable. And the patients try to be nice because they like the students and want them to make a good grade."

After each patient has been fitted and received "static and dynamic alignment" of the new legs, each student makes a brief case presentation of his patient and discusses what adjustments were necessary.

There is an art to making the legs work. Gonzalez has extra tissue at the end of her residual limb. If the prosthesis rubs continually against this, it can produce a callous. McClellan had directed Cummings to cut a hole in the plastic liner of the prosthesis and have the patient put two stretch "socks" on. The student then pulled the outer sock through the hole while the patient held the inner sock. This "trick of the trade" made the prosthesis fit comfortably.

And the prosthesis must be fitted and aligned properly. "Be careful not to get a new amputee into a bad gait pattern with your bad alignment," warns McClellan. "If you give a patient a leg to walk on and it's all they have, they'll learn to walk on it."

Patient management is an important part of the curriculum here as well as training in specific prosthetic and orthotic systems and fabrication techniques. In addition, students study anatomy, physiology, kinesiology and pathology.

Students entering the program must have at least two years of college with a background in the sciences. The next class of six will start this June.

After two years of study in the Prosthetics and Orthotics Program with clinical rotations through Dallas Rehabilitation Institute, Parkland Memorial Hospital and Texas Scottish Rite Hospital, students will receive a B.S. They must then serve a one-year internship in each discipline to prepare for the certification examinations.

Professionals may be certified in orthotics, prosthetics or both disciplines. The designated title of a certified practitioner is either C.O. (certified orthotist), C.P. (certified prosthetist) or C.P.O. (certified prosthetist-orthotist). The C.P.O. is relatively rare. McClellan is a C.P.O. Other faculty members are Mel Stills, C.O., assistant professor, and Mary McKenzie, M.S.Ed., O.T.R., assistant professor.

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